Northern States Power Company
Prairie Island Nuclear Generating Plant
1717 Wakonade Dr. East
Welch, Minnesota 55089

March 5, 1997

Technical Specification 4.12.E

U S Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

1997 Unit 2 Steam Generator Inspection Results

In accordance with Technical Specification 4.12.E.1, the following steam generator tube plugging information is provide for the information of the NRC Staff:

Following the recent inservice inspection of the Unit 2 steam generators, 54 tubes were plugged for the first time. The percentage of tubes plugged is 4.90% in steam generator 21 and 5.7% in steam generator 22. The inspection results are summarized in Attachment 1.

In accordance with Technical Specification 4.12.E.2, this information will be expanded upon in the Inservice Inspection Report for Unit 2 which will be submitted within 90 days of the end of the current refueling outage. Also Table 4.3-13 of the Prairie Island Updated Safety Analysis Report will be updated in the next revision.

The results of the inspection of Steam Generator 21 and Steam Generator 22 were classified as Category C-3 in accordance with Technical Specification 4.12 because more than 1% of the inspected tubes in each Steam Generator were defective. The NRC Staff was informed of the Category C-3 classification by telephone on February 3, 1997. In accordance with Technical Specification 4.12.E.3, a 30 day special report on the Category C-3 steam generator inspection is provided as Attachment 2 to this letter.

During the inspection and repair of tubes, F-Star(F*) Alternate Repair Criteria was implemented under Prairie Island Modification 95L486 with improvements implemented as Addendum 1 to 95L486. There are 761 tubes classified as F* tubes. In accordance

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with Technical Specification 4.12.E.4, the identification of F* tubes by Row and Column and the location and extent of degradation are included in Attachment 3 to this letter.

This letter contains no new NRC commitments. Please contact Jack Leveille (612-388-1121, Ext. 4662) if you have any questions related to this letter.

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Attachments:
1. Steam Generator Plugged Tube and F* Tube Summary
2. Prairie Island Unit 2 Steam Generators Category C-3 Tube Inspection Special Report
3. F* Tube Report
4. Prairie Island Unit 2 In Situ Test List - January 1997 Refueling Outage

ATTACHMENT 1

Steam Generator Plugged Tube and F* Tube Summary

21 Steam Generator Plugged Tube and F* Tube Summary

Summary

New Indications Plugged this Outage:	33
Total Plugged Tubes:	165
Total F* Tubes:	500
21 Steam Generator % Plugged:	4.9%

Inspection Scope

All open tubes were examined full length with the bobbin coil, except for Rows 1 and 2 U-bends.

All Rows 1 and 2 U-bends were examined with rotating probes.

All hot leg tubes were examined with rotating probe technology (including the +Point™ coil) from tube end hot to 4 inches above the top of the tubesheet. Twenty percent of the cold leg tubes were examined with rotating probe technology (including the +Point™ coil) from tube end cold to 4 inches above the top of the tubesheet.

All B&W Alloy 600 rolled plugs were examined with rotating probe technology (including the +Point™ coil).

New Indications

Two hundred twenty-four tubes were identified with the following types of degradation

1. Wastage:
   Four tubes were plugged for thinning at the cold leg tube support plate.
   Two tubes had wastage or pitting type indications above the cold leg tubesheet, were tested in situ and were plugged.

2. Secondary Side IGA/SCC in Hot Leg Tubesheet Region
   Two tubes contained single axial or volumetric indications in the tubesheet crevice region indicative of secondary side IGA/SCC occurring in the tubesheet region. The axial indication became an F* tube after Additional Roll Expansion (ARE) and the volumetric indication was tested in situ and was plugged.
   Two tubes had volumetric indications and one had an axial indication above the tubesheet, were tested in situ, and were plugged.

3. Primary Water Stress Corrosion Cracking (PWSCC) at the Hot Leg Roll Transition Zone

One hundred fifty two tubes contained single or multiple axial indications at the Roll Transition Zone or volumetric indications. C. hundred forty six became F* tubes after successful Additional Roll Expansions. Six tubes were plugged due to unsuccessful Additional Roll Expansion.

4. Primary Water Stress Corrosion Cracking (PWSCC) at the Row 1 u-bend

One tube contained a multiple axial indication just above the row 1 u-bend tangent, was tested in situ, and was plugged.

5. Possible PWSCC near the tube end

Eighty two tubes (60 new) contained short axial indications near the hot leg tube end. These tubes were all classified as F* tubes.

21 Steam Generator Plugged Tube and F* Tube Summary (continued)

Maximum Length of Roll Transition Zone Indications
The maximum length of the indications in the Roll Transition Zone was 0.2 inches.

Visual Tube Plug Inspection
A visual inspection was done of all installed tube plugs while the secondary side was pressurized.

- No plug anomalies were identified.

Visual Tube Leak Inspection and F* Criteria Leakage
A visual inspection for tube leakage was conducted with the secondary side pressurized to approximately 740 psig. One tube with an existing F* reroll repair was identified with leakage. Nine tubes with existing F* reroll repairs were identified with seepage (moisture present, but no drops). The results of investigation into these leaking F* reroll repairs were submitted to the NRC by letter dated February 19, 1997.

Tube Plug Removal
Forty Westinghouse Alloy 600 mechanical tube plugs were removed from the cold leg as a preventive measure. All the Westinghouse Alloy 600 mechanical plugs have been replaced in 21 steam generator.

Rotating Probe Inspections
In order to best identify those tubes which have minor degradation in the tubesheet region and which could leak during the next fuel cycle, and in accordance with the requirements of Generic Letter 95-03, a complete examination of the hot leg tubesheet region of all inservice tubes was conducted using a Rotating Coil Probe which contained three different coils. These coils were a 0.115 inch pancake coil, a 0.080 inch pancake coil for discrimination of inside versus outside diameter signals and the + Point™ coil.

This probe was also used to examine all dents greater than 5 volts and to resolve distorted signals called by the bobbin probe eddy current inspection.

In addition, a rotating coil examination was conducted of twenty percent of the tubes on the cold leg side from tube end cold to 4 inches above the top of the tubesheet. No indications were found in the cold leg examination which required expansion of the examination scope.

Circumferential Indications
No circumferential indications were found.

The results of this inspection program of Steam Generator 21 were classified as Category C-3 by Technical Specification 4.12 because more than 1% (including rotating probe indications) of the inspected tubes in Steam Generators 21 were defective. The NRC staff was informed of the Category C-3 classification by telephone on February 3, 1997.

22 Steam Generator Plugged Tube and F* Tube Summary

Summary

New Indications Plugged this Outage:	21
Total Plugged Tubes:	193
Total F* Tubes:	261
22 Steam Generator % Plugged:	5.7%

Inspection Scope

All open tubes were examined full length with the bobbin coil, except for Rows 1 and 2 U-bends and one row 4 u-bend which required the rotating coil probe to examine the u-bend.

All Rows 1 and 2 U-bends were examined with rotating probes.

All hot leg tubes were examined with rotating probe technology (including the +Point™ coil) from tube end hot to 4 inches above the top of the tubesheet. Twenty percent of the cold leg tubes were examined with rotating probe technology (including the +Point™ coil) from tube end cold to 4 inches above the top of the tubesheet.

All B&W Alloy 600 rolled plugs were examined with rotating probe technology (including the +Point™ coil).

New Indications

One hundred forty-two new tubes were identified with the following types of degradation

1. Wastage:
   Four tubes were plugged for thinning at the cold leg tube support plate.

2. Secondary Side IGA/SCC in Hot Leg Tubesheet Region
   Two tubes contained a single axial or volumetric indication in the tubesheet crevice region indicative of secondary side IGA/SCC occurring in the tubesheet region. These tubes were plugged.
   Five tubes had volumetric indications above the tubesheet, were tested in situ, and were plugged.

3. Primary Water Stress Corrosion Cracking (PWSCC) at the Hot Leg Roll Transition Zone

One hundred two tubes contained new single or multiple axial indications at the Roll Transition Zone. All one hundred two tubes became F* tubes after successful Additional Roll Expansions.

4. Possible PWSCC near the tube end

Fifty three tubes (27 new) contained short axial indications near the hot leg tube end. These tubes were all classified as F* tubes.

5. Wear at Anti-vibration Bars

One tube with an indication of wear at an anti-vibration bar was plugged.

6. Other

One tube with a persistent Permeability Variation Signal located in the tubesheet was tested in situ and was plugged.

22 Steam Generator Plugged Tube and F* Tube Summary (continued)

Maximum Length of Roll Transition Zone Indications
The maximum length of the indications in the Roll Transition Zone was 0.3 inches.

Tube Plug Inspection
A visual inspection was done of all installed tube plugs while the secondary side was pressurized. The plug inspection identified one Westinghouse Alloy 600 explosive plug located in the hot leg with moisture present. The plug was replaced with an Alloy 690 welded tubesheet plug.

Visual Tube Leak Inspection and F* Criteria Leakage
A visual inspection for tube leakage was conducted with the secondary side pressurized to approximately 740 psig. One tube with an existing F* reroll repair was identified with leakage. One tube with existing F* reroll repairs was identified with seepage (no drops). The results of investigation into these leaking F* reroll repairs were submitted to the NRC by letter dated February 19, 1997.

Tube Plug Removal
One hundred five Westinghouse Alloy 600 mechanical tube plugs were removed from the cold leg as a preventive measure. All the Westinghouse Alloy 600 mechanical plugs have been replaced in 22 steam generator.

Rotating Probe Inspections
In order to best identify those tubes which have minor degradation in the tubesheet region and which could leak during the next fuel cycle, and in accordance with the requirements of Generic Letter 95-03, a complete examination of the hot leg tubesheet region of all inservice tubes was conducted using a Rotating Coil Probe which contained three different coils. These coils were a 0.115 inch pancake coil, a 0.080 inch pancake coil for discrimination of inside versus outside diameter signals and the + Point™ coil.

This probe was also used to examine all dents greater than 5 volts and to resolve distorted signals called by the bobbin probe eddy current inspection.

In addition, a rotating coil examination was conducted of twenty percent of the tubes on the cold leg side from tube end cold to 4 inches above the top of the tubesheet. No indications were found in the cold leg examination which required expansion of the examination scope.

Circumferential Indications

The B&W Alloy 600 rolled plugs have been inspected in the past with the rotating pancake coil. For the first time at Prairie Island, these plugs were inspected with the +Point coil. Circumferential indications located at the heel of the hard roll region in the plug were found in three hot leg B&W Alloy 600 rolled plugs. These plugs were replaced.

1995 F* Measurement Error

Tube R7C64 in 22 steam generator was classified as an F*0 tube in May 1995. An F*0 tube is a tube which contains indications in the original hard roll zone or in the tube end/seal weld area and meets the F* criteria based on the length of sound original hard roll expansion region without any additional roll expansion. This tube had a single axial indication at TEH + 0.1 to + 0.2 inches which is in or below the seal weld region of the tube end. The measurement of the indication during the 1995 outage was from the tube end to the indication and then this was value was subtracted from a constant value for the original hard roll expansion to give the criteria for an F*0 tube. However, this tube did not have the normal complete 2.75 inch expansion. Upon review of previous data, this tube had been identified as a tube with a partial tube expansion in 1989 (partial tube expansions are not a problem since the design basis for structural integrity is at the tube end seal weld). The distance for F*0 criteria for the 1997 outage was correctly measured from the top of the original equipment manufacturers (OEM) hard roll down to the top of the indication. The Prairie Island Technical Specification F* distance is 1.07 inches plus an eddy current uncertainty. The interim Prairie Island eddy current uncertainty is 0.4 inches which has been rounded up to give an F* distance of 1.5 inches of indication free hard roll and no indications above the hard roll. The 1997 measurement for R7C64 was determined from 10 repeated examinations to be 1.45 inches of sound hard roll above the top of the indication. By letter commitment to the NRC dated March 15, 1995, NSP committed to an eddy current measurement uncertainty of 0.2 inches to be confirmed by Prairie Island specific testing. When that testing was not completed, NSP committed to doubling the uncertainty to and applying an F* distance of 1.5 inches. Therefore, there is substantial margin in the eddy current uncertainty allowance and the indication in R7C64 does not represent a significant deviation from the Technical Specification requirement of 1.07 inches plus eddy current measurement uncertainty. The NRC was informed at a meeting on February 13, 1997 that the R7C64 F*0 tube did not met the 1.5 inches of sound hard roll above the indication. The tube had 1.45 inches of sound hard roll above the indication which exceeds the Technical Specification limit of 1.07 inches of sound hard roll. All F*0 tubes in 21 and 22 Steam Generator were evaluated to insure that 1.5 inches of sound hard roll exists above the indication where F* is determined by eddy current measurement. The tube R7C64 was successfully rerolled per Modification 95L486 addendum 1. None of the F*0 tubes in Unit 1 are in tubes with partial tube expansions.

The results of this inspection program of Steam Generator 22 were classified as Category C-3 by Technical Specification 4.12 because more than 1% (including rotating probe indications) of the inspected tubes in Steam Generator 22 were defective. The NRC staff was informed of the Category C-3 classification by telephone on February 3, 1997

Summary

An inservice inspection consisting of 100% full length bobbin coil, 100% of hot leg, and 20% of the cold tubesheet region mechanical rotating probe with + Point™ coil was conducted on Unit 2 Steam Generators from January 29, 1997 through February 8, 1997. In addition visual inspection were conducted for indications of leakage with the secondary side pressurized.

As a result of the visual and eddy current inspections 16.3% (533 of 3256) of the inspected tubes in Steam Generator 21 contained defects requiring repair. Thirty three of these tubes were plugged and the remaining 500 tubes were left in service using previous and new Additional Roll Expansions and the F-Star (F*) alternate repair criteria. Repairs were completed on February 17, 1997.

As a result of the visual and eddy current inspection 8.8% (282 of 3216) of the inspected tubes in Steam Generator 22 contained defects requiring repair. Twenty one of these tubes were plugged and 261 tubes were left in service using previous and new Additional Roll Expansions and the (F*) alternate repair criteria. Repairs were completed on February 18, 1996.

ATTACHMENT 2

Prairie Island Unit 2 Steam Generators Category C-3 Tube Inspection Special Report

Prairie Island Unit 2 Steam Generators
Category C-3 Tube Inspection
Special Report

Purpose

This report fulfills the special reporting requirements of Prairie Island Technical Specification 4.12.E.3. This report is required whenever the steam generator tube inservice inspection finds more than 10 % of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective. This report summarizes the inspection results, the causes of degradation, the condition monitoring assessment, and the operational assessment.

Summary

An inservice inspection consisting of 100% full length bobbin coil, 100% of hot leg, and 20% of the cold tubesheet region mechanical rotating probe with + Point™ coil was conducted on Unit 2 Steam Generators from January 29, 1997 through February 8, 1997. In addition visual inspections were conducted for indications of leakage with the secondary side pressurized.

As a result of the visual and eddy current inspections 16.3% (533 of 3256) of the inspected tubes in Steam Generator 21 contained defects requiring repair. Thirty three of these tubes were plugged and the remaining 500 tubes were left in service using previous and new Additional Roll Expansions and the F-Star (F*) alternate repair criteria. Repairs were completed on February 17, 1997.

As a result of the visual and eddy current inspection 8.8% (282 of 3216) of the inspected tubes in Steam Generator 22 contained defects requiring repair. Twenty one of these tubes were plugged and 261 tubes were left in service using previous and new Additional Roll Expansions and the (F*) alternate repair criteria. Repairs were completed on February 18, 1996.

Background

Table 1 provides data on the Prairie Island Nuclear Generating Plant which is significant for the steam generators.

Table 1: PRAIRIE ISLAND PLANT DATA

Location: On Mississippi River near Red Wing Minnesota
Nuclear Steam Supply System: Westinghouse 2-Loop 560 MWE
Steam Generators: Westinghouse Model 51
Mill-Annealed Alloy 600 Tubing
Open Tubesheet Crevices - 2.75 inch hard roll at bottom of tube
Circulating Water: Mississippi River/Cooling Towers
Secondary Systems Tubing: Stainless Steel/Carbon Steel
Startup Dates : Unit 1 - December 16, 1973
Unit 2 - December 21, 1974
Effective Full Power Days as of December 31, 1996:
Unit 1 - 18.9 EFPY's
Unit 2 - 18.7 EFPY's
HOT LEG TEMPERATURE: 590 degrees Fahrenheit

The current status of each steam generator at Prairie Island is shown in the attached Table 2: "Prairie Island Steam Generator Tube Plug and Sleeve Status."

Causes of Major Tube Degradation

The major cause of the degradation of tubes in the Unit 2 Steam Generators is primary water stress corrosion cracking (PWSCC) This degradation first became detectable at Prairie Island in October 1993 using bobbin coil supplemented with RPC inspection.

Tube pulls from Prairie Island Unit 1 and rotating coil (MRPC and plus-point) of the tubes plus experience gained from other utilities provided confirmation of the type of degradation occurring in the tubesheet region. MRPC examinations of all tubes with non-quantifiable indications in the tubesheet region has been done routinely since February, 1987. The MRPC results plus a tube pull from Unit 1 have confirmed the type of degradation as PWSCC.

Also, a few tubes are being repaired due to indications of secondary side intergranular attack and stress corrosion cracking (IGA/SCC or ODSCC) in the tubesheet crevice region and at the top of the tubesheet associated with the region of hard sludge deposits. This degradation mechanism was first identified in Unit 2 Steam Generators in May 1995.

Comparison of Number of Defective Tubes in Unit 2 Steam Generators, May 1995 to January 1997.

The number of new defective tubes identified in Unit 2 Steam Generators decreased significantly because this was the second time that the tubesheet regions in Unit 2 were completely examined using +Point rotating probe technology.

There are no sleeves installed in Unit 2 steam generators

Condition Monitoring

Condition Monitoring evaluates the as found condition of the steam generator tubing against leakage and structural integrity criteria. There were no tubes identified which exceeded the structural integrity requirement of no tube burst at three times the normal operating differential pressure. Degradation mechanisms located in the tubesheet crevice region can not burst due to the constraints of the tubesheet. Axial degradation mechanisms are not expected to burst unless the indication is greater than 0.38 inches long in the free span.

In Situ Tests

To demonstrate adequate leakage and structural integrity, thirty five tubes were tested in situ. Tests were done at Main Steam Line Break (MSLB) conditions for indications in the tubesheet crevice region. Test were done at Main Steam Line Break pressure and at three times normal operating differential pressure (3dp) for indications in free span regions. The test pressure for Main Steam Line Break conditions was 2816 psig and for 3dp was 5624 psig. The list of tubes tested in situ is in Attachment 4. No tubes challenged the structural integrity criteria of 3 times normal operating differential pressure. No tubes, other than the two F* reroll tubes discussed, leaked at Main Steam Line Break pressures. Leakage from the two F* reroll tubes was determined to be 0.03 and 0.06 gallons per hour which was a small fraction of the allowable Main Steam Line Break Leakage of 5 gpm (300 gph). All tubes tested in situ were plugged.

Operational Assessment for Each Degradation Mechanism

1. **Wear at Tube Bundle Structural Components and Foreign Objects (Loose Parts)**

   There were 47 active AVB wear locations this outage compared to 41 last outage. One AVB location required plugging. It had increased from 38% to 40%. The maximum growth seen for indications which were greater than 10% last cycle was one indication at 11% growth in a tube that went from 10% to 21%. The maximum growth in indications which were greater than 20% last inspection was 6%. The

AVB wear degradation mechanism growth rate does not challenge structural integrity during the next cycle. There are no detectable active wear scars due to foreign objects.

2. **Thinning at the Cold Leg Tube Support Plates**
   There were 214 active CLTSP thinning locations this outage compared to 239 last outage. Eight of these locations required plugging (one was a small voltage DSI indication which was confirmed as volumetric by +Point). The largest percent call was 50% which had increased from 29% the previous outage. The maximum growth seen for indications which were greater than 10% last cycle was 22%. The 95%/95% growth rate was 20%. The average growth rate was 3.1%. The cold leg tube support plate degradation mechanism does not challenge structural integrity during the next cycle.

3. **Assessment of Secondary Side IGA/SCC in the Tubesheet Region**
   Secondary side IGA/SCC is identified as axial or volumetric indications and is plugged on detection and thus growth rates are not available. The maximum length of IGA/SCC seen in the tubesheet region was a 1.1 inch SAI in 21 SG R7C51. However, this length was made up of 4 shorter cracks each separated by at least 0.3 inch and none of which were greater than 0.3 inches long. This indication was not pressure tested in situ due to manipulator interference. However, a 0.4 SAI indication in 21 SG R7C35 was pressure tested at MSLB conditions in situ and there was no leakage and a higher voltage 0.6 inch indication in 22 SG R16C38 was tested several times without leakage. None of the tubes with tubesheet axial or volumetric indications not associated with the reroll problems leaked under MSLB conditions. Therefore, it is expected that secondary side IGA/SCC does not present a concern for the next cycle.

4. **Secondary Side IGA/SCC at the Top of the Tubesheet Region**
   There were 10 volumetric or SAI indications located at the top of the tubesheet. Again these indications are plugged on detection. Each one was pressure tested in situ at MSLB conditions and at 3 times normal operating differential pressure. There was no leakage at MSLB pressure and there was no rupture at 3dp. One tube 21 SG R29C29 leaked at 3dp, but there was no change in the post pressure test ET signal. Therefore, none of the indications at the top of the tubesheet presented challenges to structural or leakage integrity and new indications are not expected to present challenges during the next cycle.

5. **Assessment of Primary Water Stress Corrosion Cracking at the Roll Transition Zones (PWSCC at RTZ)**
   Six of the approximately 250 new indications of PWSCC at RTZs were pressure tested in situ including some of the largest voltage indications. No leakage was identified. This is the second inspection using the +Point coil of the roll transition zones. This is a reduction from the last outage of about 400 RTZ indications. Since the indications did not leak, new indications are not expected to leak either and do not present leakage or structural integrity concerns during the next cycle.

6. **Primary Water Stress Corrosion Cracking at the Low Row U–bends (PWSCC at U–bends)**
   This is the first time that a u-bend indication appeared in Unit 2 and required plugging. The indication was about 0.4 inches long. It did not leak or burst under 3 times normal operating pressure differential conditions. Since the +Point coil was used to examine all of the row 1 and 2 u-bends, there is reasonable assurance that u-bend degradation growth will not exceed structural and leakage integrity for the next cycle.

7. **Secondary Side IGA/SCC at the Tube Support Plates**
   All distorted indications at all tube support plates were examined by +Point coil. There were no confirmed indications of degradation at the tube support plates not associated with cold leg thinning. Therefore, this degradation mechanism does not appear to be active in Unit 2.

8. **Manufacturing Burnishing Marks in crevice regions**
   All manufacturing burnishing marks could be traced back to 1989 and showed no change. Therefore, there does not appear to be any degradation associated with the MBMs'.

9. **Degradation at Dented Tube Support Plate Locations**
   All dents > 5.0 volts were examined with +Point. No indications of degradation were found.

10. **Indications at Tube Ends**
    There is an increasing number of indications associated with the tube ends. The number has increased from 48 in 1995 to 135 in 1997. These indications are low enough in the hard roll region to meet F* criteria and do not present a structural or

leakage integrity concern.

11. Degradation in Sleeves: There are no sleeves in Unit 2.

12. Degradation in Additional Roll Expansions (Re-Rolls)
One F* reroll had an axial indication in the upper roll transition region. This indication was in 21 SG R7C27. It was pressure tested in situ and did not leak under MSLB conditions. This indication is similar to RTZ PWSCC and does not present a structural or leakage integrity concern.

13. Structural Degradation of the Tube Support Plates
Computerized data screening was done of all tube support plate locations looking for indications of significant ligament cracking. None was found.

14. Potential Degradation in Tube Plugs
All tube plugs were examined visually. One explosive plug from 1977 had seepage and was replaced. All B&W plugs were examined in the hot leg with the +Point coil (first use). Three of the B&W rolled plugs contained circumferential indications in the heel region and were replaced in accordance with BWNT recommendations to inspect each cycle and replace those with indications. An inspection at each refueling cycle is sufficient to insure the integrity of the B&W plugs. Because of the indications in the hot leg plugs, all of the cold leg B&W plugs were inspected with the +Point coil. No indications were found in the cold leg plugs.

Summary of Operational Assessment

The evaluation of all indications of degradation confirms that none of the forms of degradation occurring presents a structural or leakage integrity concern for the next cycle of operation.

Remedial Actions

Northern States Power has participated in utility funded research on steam generator related issues beginning with the Steam Generator Owners Group II in 1982 and continuing to the present EPRI funded Steam Generator Management Project. Remedial actions to reduce and/or prevent tube degradation due to primary water stress corrosion cracking and secondary side IGA/SCC have been used by the industry with only limited success. Prairie Island has evaluated, and in most cases, implemented the following remedial actions:

Reduced Operating Temperature: Prairie Island has been a low temperature plant having operated with Thot at 590 °F since startup. This has slowed, but not eliminated, growth of PWSCC and IGA/SCC in the Prairie Island steam generators. Additional temperature reduction has not been warranted.

Chemistry Control: Prairie Island has used state of the art analytical equipment since startup and has followed both the original equipment manufacturer's water chemistry guidelines as well as the EPRI secondary water chemistry guidelines. The amounts of material found from hideout return tests during shutdowns have been small. Steam generators are sludge lanced every other outage on a cycling basis with less than 80 pounds of sludge removed from the steam generator per outage. The PWSCC degradation is relatively independent of chemistry and occurs in regions of high residual stress.

High Hydrazine and Molar Ratio Control: These two remedial actions have been used with success in Japan. For a US plant, Prairie Island has maintained relatively high hydrazine levels for a long time. In May, 1992, hydrazine control was raised to 125 +- 25 ppb.

Molar ratio control to reduce secondary side corrosion: Molar ration control has been attempted by adjustments to steam generator blowdown resin ratios during the last operating cycle. Molar ratio control is still being evaluated. The object of molar ratio control is to maintain the cation to anion ratio (sodium to chloride) at less than one so that free sodium hydroxide can not form in the crevice regions.

Conduct Crevice Flushing Operations with Boric Acid: Prairie Island started crevice flushing in 1986 using two days of time. Since then we have added boric acid to the crevice flushing procedure. The time has been reduced to 24 hours since only a small amount of contaminants are being removed.

On-line addition of Boric Acid: Following the report of favorable laboratory results in 1986, Prairie Island began on-line addition of boric acid in unit 1 in March 1987. The effectiveness of this remedial action remains controversial within the industry (EPRI IGA/SCC workshops in May 1991 and December 1992). Improvements in the eddy current technology can make comparisons difficult, however, since a different set of tubes would have been identified for everyone if RPC inspections had been available and/or used in the past. Prairie Island will continue to use boric acid until such time as an inhibitor of equal or greater effectiveness is justified

for on-line use. One of the recommended boric acid practices, low power soaks, has not been implemented at Prairie Island.

Use of other chemical inhibitors: At the present time, NSP supports EPRI research for other chemical inhibitors. Our current evaluations centers around the use of titanium compounds to inhibit the growth of IGA/SCC. A titanium chelate, TYZOR LA Titanate has been added since January 1994.

Preventive sleeving: Sleeving is one method of reducing the probability of tube leak outages. The down side of preventive sleeving is the inability to follow the degradation mechanism and the reduction in the ability to examine tube support plate intersection above the sleeves. NSP has made the strategic decision to sleeve on an as-needed basis, to insure that we are able to best follow the tube support plate problems and to reduce our overall cost of steam generator repair and maintenance.

F* Repair Criteria: The F-Star Alternate Repair Criteria allows tube to remain in service with indications below the F* distance. Additional Roll Expansion adds a new F* distance to the steam generator tubing and allows additional tubes to remain in service which have degradation in the lower tubesheet crevice region.

Detailed Inspection Plans: Although not a recommendation for remedial actions, but rather a current inspection guideline, 100% of the full length of all tubes in service are routinely examined at Prairie Island . This was started in 1982. In addition, all tubes with indications which can not be quantified, such as UDI's, DSI's, MBM's (in the tubesheet) are examined with the rotating coil probe due to its higher sensitivity. Repair decisions, in those cases, are based on the RPC results.

ATTACHMENT 3

F* Tube Report

21 STEAM GENERATOR F*0 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	1	4	SAI	TRH - 2.6TO- 2.5	F*0
H	3	6	SAI	TRH - 2.4TO- 2.3	F*0
H	1	7	SAI	TRH - 2.4TO- 2.3	F*0
H	2	7	MAI	TRH - 2.5TO- 2.4	F*0
H	1	8	MAI	TRH - 2.5TO- 2.3	F*0
H	2	8	SAI	TRH - 2.5TO- 2.2	F*0
H	5	8	SAI	TRH - 2.5TO- 2.4	F*0
H	1	9	SAI	TRH - 2.4TO- 2.3	F*0
H	7	9	MAI	TRH - 2.4TO- 2.0	F*0
H	1	10	MAN	TRH - 2.2TO- 1.8	F*0
H	2	10	SAI	TRH - 2.1TO- 2.0	F*0
H	15	10	SAI	TRH - 2.3TO- 2.2	F*0
H	1	11	MAN	TRH - 2.4TO- 2.2	F*0
H	2	11	SAI	TRH - 2.8TO- 2.6	F*0
H	3	11	MAI	TRH - 2.5TO- 2.4	F*0
H	13	11	SAI	TRH - 2.4TO- 2.3	F*0
H	1	12	MAN	TRH - 2.5TO- 2.2	F*0
H	2	12	SAN	TRH - 2.5TO- 2.4	F*0
H	7	12	SAI	TRH - 2.4TO- 2.4	F*0
H	15	12	SAI	TRH - 2.4TO- 2.4	F*0
H	28	12	MAI	TRH - 2.4TO- 2.3	F*0
H	1	13	MAN	TRH - 2.4TO- 2.3	F*0
H	6	13	SAI	TRH - 2.4TO- 2.3	F*0
H	7	13	SAI	TRH - 2.5TO- 2.3	F*0
H	22	13	MAN	TRH - 2.4TO- 2.3	F*0
H	1	14	MAI	TRH - 2.4TO- 2.2	F*0
H	7	15	SAI	TRH - 2.4TO- 2.2	F*0
H	27	15	SAI	TRH - 2.4TO- 2.3	F*0
H	2	16	SAI	TRH - 2.3TO- 2.2	F*0
H	3	16	SAI	TRH - 2.4TO- 2.3	F*0
H	5	16	SAI	TRH - 2.4TO- 2.3	F*0
H	7	16	MAI	TRH - 2.4TO- 2.1	F*0
H	18	16	MAI	TRH - 2.5TO- 2.4	F*0
H	2	17	SAI	TRH - 2.5TO- 2.3	F*0
H	4	17	SAI	TRH - 2.5TO- 2.4	F*0
H	6	17	MAI	TRH - 2.4TO- 2.3	F*0
H	7	17	MAI	TRH - 2.3TO- 2.2	F*0
H	33	18	SAI	TRH - 2.6TO- 2.6	F*0

21 STEAM GENERATOR F*0 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	7	19	SAI	TRH - 2.3TO- 2.2	F*0
H	22	19	SAI	TRH - 2.4TO- 2.3	F*0
H	6	20	SAI	TRH - 2.4TO- 2.4	F*0
H	25	20	MAI	TRH - 2.4TO- 2.4	F*0
H	33	20	MAN	TRH - 2.6TO- 2.5	F*0
H	6	21	MAI	TRH - 2.5TO- 2.3	F*0
H	8	21	MAI	TRH - 2.4TO- 2.3	F*0
H	33	21	SAI	TRH - 2.5TO- 2.3	F*0
H	5	22	SAI	TRH - 2.4TO- 2.3	F*0
H	7	22	SAN	TRH - 2.5TO- 2.2	F*0
H	32	22	SAI	TRH - 2.4TO- 2.3	F*0
H	1	23	SAN	TRH - 2.4TO- 2.3	F*0
H	7	24	SAI	TRH - 2.5TO- 2.4	F*0
H	1	35	SAI	TRH - 2.3TO- 2.2	F*0
H	25	41	SAI	TRH - 2.4TO- 2.3	F*0
H	19	46	MAI	TRH - 2.6TO- 2.4	F*0
H	1	47	MAI	TRH - 2.4TO- 2.0	F*0
H	1	48	SAN	TRH - 2.4TO- 2.1	F*0
H	24	60	MAI	TRH - 2.5TO- 2.4	F*0
H	24	61	SAI	TRH - 2.3TO- 2.3	F*0
H	27	61	SAI	TRH - 2.4TO- 2.3	F*0
H	1	62	SAN	TRH - 2.6TO- 2.5	F*0
H	15	62	SAI	TRH - 2.4TO- 2.3	F*0
H	25	63	SAI	TRH - 2.4TO- 2.3	F*0
H	29	63	SAI	TRH - 2.4TO- 2.3	F*0
H	1	64	MAN	TRH - 2.4TO- 2.2	F*0
H	2	64	SAI	TRH - 2.4TO- 2.3	F*0
H	1	65	SAI	TRH - 2.6TO- 2.5	F*0
H	1	66	MAN	TRH - 2.6TO- 2.4	F*0
H	25	66	SAI	TRH - 2.5TO- 2.4	F*0
H	1	68	SAI	TRH - 2.5TO- 2.4	F*0
H	27	68	SAI	TRH - 2.4TO- 2.2	F*0
H	2	70	SAI	TRH - 2.3TO- 2.3	F*0
H	25	70	SAI	TRH - 2.3TO- 2.2	F*0
H	31	71	SAI	TRH - 2.5TO- 2.4	F*0
H	31	72	SAI	TRH - 2.7TO- 2.6	F*0
H	1	75	SAI	TRH - 2.3TO- 2.2	F*0
H	1	76	SAN	TRH - 2.3TO- 2.1	F*0
H	16	76	SAI	TRH - 2.3TO- 2.0	F*0

21 STEAM GENERATOR F*0 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	27	76	SAI	TRH - 2.4TO- 2.3	F*0
H	1	77	SAN	TRH - 2.4TO- 2.0	F*0
H	3	77	SAI	TRH - 2.5TO- 2.4	F*0
H	20	79	SAI	TRH - 2.3TO- 2.2	F*0
H	1	81	SAI	TRH - 2.3TO- 2.3	F*0

Grand Count 82

F*0 = F* TUBE WITHOUT ADDITIONAL ROLL EXPANSION
MAI = MULTIPLE AXIAL INDICATION
MAN = MULTIPLE AXIAL INDICATION WITH NO CHANGE
SAI = SINGLE AXIAL INDICATION
SAN = SINGLE AXIAL INDICATION WITH NO CHANGE
TRH = TOP OF ROLL HOT LEG
NO CHANGE = INCREASE IN LENGTH < 0.1 INCH OR MOVE IN AXIAL DIRECTION <0.1 INCH

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	5	10	SAI	TRH + 0.0TO+ 0.1	F*1
H	5	10	SAN	1BH - 1.3TO- 1.2	F*1
H	12	10	SAI	TRH + 0.1TO+ 0.2	F*1
H	12	10	INR	1BH - 1.3	F*1
H	4	11	MAI	1BH - 1.3TO- 1.1	F*1
H	4	11	MAI	1BH - 3.8TO- 3.6	F*1
H	5	11	SAI	1BH - 3.7TO- 3.6	F*1
H	5	11	MAI	1BH - 1.3TO- 1.2	F*1
H	14	11	MAI	TRH + 0.1TO+ 0.2	F*1
H	14	11	MAN	1BH - 1.2TO- 1.1	F*1
H	11	12	SAI	TRH + 0.1TO+ 0.2	F*1
H	11	12	SAN	1BH - 1.1TO- 1.1	F*1
H	14	12	MAN	1BH - 1.2TO- 1.0	F*1
H	14	12	SAN	1BH - 3.7TO- 3.5	F*1
H	2	13	MAN	1BH - 3.7TO- 3.5	F*1
H	2	13	MAN	1BH - 1.3TO- 0.9	F*1
H	4	13	SAI	1BH - 1.2TO- 1.1	F*1
H	2	14	SAI	TRH - 1.6TO- 1.4	F*1
H	2	14	SAN	1BH - 3.6TO- 3.4	F*1
H	7	14	SAI	TRH - 1.5TO- 1.4	F*1
H	7	14	SAN	1BH - 3.7TO- 3.6	F*1
H	11	14	MAN	1BH - 1.1TO- 0.9	F*1
H	1	15	MAN	1BH - 1.2TO- 1.1	F*1
H	1	15	INF	TEH + 0.1TO+ 0.2	F*1
H	13	15	MAN	1BH - 1.3TO- 0.9	F*1
H	16	15	MAN	1BH - 1.3TO- 1.1	F*1
H	16	15	SAN	1BH - 3.8TO- 3.6	F*1
H	18	15	MAN	1BH - 1.2TO- 1.1	F*1
H	1	16	SAI	TRH + 0.2TO+ 0.2	F*1
H	1	16	MAI	TRH - 2.4TO- 2.1	F*1
H	1	16	MAN	1BH - 3.6TO- 3.4	F*1
H	1	16	SAN	1BH - 1.3TO- 1.3	F*1
H	4	16	MAN	1BH - 1.4TO- 1.0	F*1
H	8	16	MAI	TRH + 0.1TO+ 0.2	F*1
H	8	16	MAN	1BH - 1.2TO- 1.1	F*1
H	17	16	SAI	TRH + 0.0TO+ 0.1	F*1
H	17	16	SAN	1BH - 1.3TO- 1.2	F*1
H	29	16	MAN	1BH - 1.2TO- 1.1	F*1

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	1	17	MAN	1BH - 3.7TO- 3.6	F*1
H	1	17	MAN	1BH - 1.4TO- 1.1	F*1
H	14	17	SAN	1BH - 1.2TO- 1.1	F*1
H	18	17	SAI	TRH + 0.1TO+ 0.2	F*1
H	18	17	INR	1BH - 1.3	F*1
H	19	17	SAI	TRH + 0.1TO+ 0.2	F*1
H	19	17	SAN	1BH - 1.3TO- 1.2	F*1
H	25	17	SAI	TRH - 1.4TO- 1.4	F*1
H	25	17	MAI	TRH + 0.2TO+ 0.2	F*1
H	25	17	SAN	1BH - 3.6TO- 3.5	F*1
H	1	18	MAI	TRH + 0.1TO+ 0.2	F*1
H	1	18	MAN	TRH - 2.3TO- 2.2	F*1
H	1	18	MAN	1BH - 1.2TO- 1.2	F*1
H	1	18	MAN	1BH - 3.6TO- 3.4	F*1
H	3	18	SAN	1BH - 1.3TO- 1.2	F*1
H	4	18	MAN	1BH - 1.4TO- 1.0	F*1
H	5	18	MAN	1BH - 1.4TO- 1.0	F*1
H	19	18	MAI	TRH + 0.1TO+ 0.2	F*1
H	19	18	MAN	1BH - 1.3TO- 1.2	F*1
H	27	18	SAI	TRH + 0.2TO+ 0.3	F*1
H	27	18	SAN	1BH - 1.2TO- 1.1	F*1
H	1	19	MAN	1BH - 3.7TO- 3.4	F*1
H	1	19	MAN	1BH - 1.3TO- 1.1	F*1
H	4	19	SAI	TRH + 0.1TO+ 0.2	F*1
H	4	19	SAN	1BH - 1.3TO- 1.2	F*1
H	6	19	SAI	TRH + 0.1TO+ 0.1	F*1
H	6	19	MAI	TRH - 2.4TO- 2.3	F*1
H	6	19	MAN	1BH - 1.3TO- 1.2	F*1
H	6	19	MAN	1BH - 3.7TO- 3.6	F*1
H	9	19	MAI	TRH + 0.1TO+ 0.2	F*1
H	9	19	MAN	1BH - 1.3TO- 1.2	F*1
H	19	19	MAN	1BH - 1.3TO- 1.1	F*1
H	23	19	SAI	TRH + 0.1TO+ 0.1	F*1
H	23	19	SAN	1BH - 1.1TO- 1.0	F*1
H	25	19	MAI	TRH + 0.1TO+ 0.1	F*1
H	25	19	MAN	1BH - 1.3TO- 1.2	F*1
H	27	19	SAI	TRH - 2.4TO- 2.3	F*1
H	27	19	MAI	TRH + 0.2TO+ 0.3	F*1
H	27	19	MAN	1BH - 1.3TO- 1.1	F*1

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	27	19	SAN	1BH - 3.7TO- 3.6	F*1
H	31	19	MAI	TRH + 0.1TO+ 0.2	F*1
H	31	19	INR	1BH - 1.3	F*1
H	4	20	SAI	TRH + 0.1TO+ 0.1	F*1
H	4	20	SAN	1BH - 1.0TO- 0.9	F*1
H	7	20	MAI	1BH - 1.4TO- 1.0	F*1
H	7	20	MAN	1BH - 3.6TO- 3.5	F*1
H	9	20	SAI	TRH + 0.2TO+ 0.3	F*1
H	9	20	SAN	1BH - 1.3TO- 1.2	F*1
H	13	20	MAN	1BH - 1.4TO- 0.9	F*1
H	17	20	MAN	1BH - 1.2TO- 1.2	F*1
H	27	20	MAN	1BH - 1.1TO- 0.9	F*1
H	29	20	MAN	1BH - 1.2TO- 1.0	F*1
H	7	21	MAN	1BH - 1.2TO- 1.1	F*1
H	7	21	MAN	1BH - 3.6TO- 3.5	F*1
H	9	21	MAN	1BH - 1.3TO- 1.1	F*1
H	11	21	SAI	TRH + 0.2TO+ 0.4	F*1
H	11	21	SAN	1BH - 1.3TO- 1.2	F*1
H	14	21	SAI	TRH + 0.1TO+ 0.1	F*1
H	14	21	SAN	1BH - 1.3TO- 1.2	F*1
H	16	21	MAN	1BH - 1.2TO- 1.1	F*1
H	17	21	MAN	1BH - 1.3TO- 1.1	F*1
H	24	21	MAN	1BH - 1.3TO- 1.2	F*1
H	26	21	SAI	TRH + 0.1TO+ 0.1	F*1
H	26	21	SAN	1BH - 1.3TO- 1.2	F*1
H	31	21	SAI	TRH + 0.1TO+ 0.2	F*1
H	31	21	SAI	TRH - 2.4TO- 2.2	F*1
H	31	21	SAN	1BH - 1.3TO- 1.2	F*1
H	31	21	SAN	1BH - 3.6TO- 3.5	F*1
H	1	22	MAN	1BH - 1.2TO- 1.1	F*1
H	1	22	MAN	1BH - 3.8TO- 3.4	F*1
H	2	22	MAN	1BH - 1.3TO- 1.1	F*1
H	3	22	MAN	1BH - 1.4TO- 0.8	F*1
H	4	22	MAN	1BH - 1.2TO- 1.1	F*1
H	8	22	MAN	1BH - 1.3TO- 1.1	F*1
H	8	22	MAN	1BH - 3.8TO- 3.6	F*1
H	14	22	MAN	1BH - 1.3TO- 1.2	F*1
H	16	22	MAN	1BH - 1.3TO- 1.2	F*1
H	17	22	MAN	1BH - 1.2TO- 1.0	F*1

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	39	22	SAN	1BH - 1.2TO- 1.1	F*1
H	3	23	MAN	1BH - 1.2TO- 1.1	F*1
H	6	23	MAI	1BH - 1.1TO- 1.0	F*1
H	6	23	MAI	1BH - 3.7TO- 3.5	F*1
H	8	23	MAI	TRH + 0.1TO+ 0.1	F*1
H	8	23	INR	1BH - 1.3	F*1
H	12	23	MAI	TRH + 0.1TO+ 0.1	F*1
H	12	23	MAN	1BH - 1.2TO- 1.2	F*1
H	14	23	MAN	1BH - 1.4TO- 0.9	F*1
H	16	23	MAN	1BH - 1.3TO- 1.1	F*1
H	19	23	MAN	1BH - 1.2TO- 1.2	F*1
H	24	23	MAI	TRH + 0.1TO+ 0.2	F*1
H	24	23	SAN	1BH - 3.5TO- 3.4	F*1
H	30	23	MAI	TRH + 0.0TO+ 0.1	F*1
H	30	23	MAN	1BH - 1.0TO- 0.9	F*1
H	31	23	SAI	TRH + 0.1TO+ 0.1	F*1
H	31	23	INR	1BH - 1.2	F*1
H	3	24	SAI	TRH + 0.1TO+ 0.1	F*1
H	3	24	MAN	1BH - 1.5TO- 1.5	F*1
H	5	24	MAN	1BH - 1.2TO- 1.1	F*1
H	6	24	MAN	1BH - 3.5TO- 3.3	F*1
H	6	24	MAN	1BH - 1.1TO- 0.8	F*1
H	9	24	SAN	1BH - 1.2TO- 1.1	F*1
H	12	24	MAN	1BH - 1.1TO- 0.9	F*1
H	30	24	MAI	TRH + 0.1TO+ 0.1	F*1
H	30	24	MAN	1BH - 1.3TO- 1.2	F*1
H	8	25	SAI	TRH + 0.1TO+ 0.1	F*1
H	8	25	SAN	1BH - 1.5TO- 1.5	F*1
H	14	25	MAI	TRH + 0.1TO+ 0.2	F*1
H	14	25	MAN	1BH - 1.3TO- 1.2	F*1
H	16	25	SAN	1BH - 1.3TO- 1.1	F*1
H	4	26	SAI	TRH + 0.1TO+ 0.2	F*1
H	4	26	SAN	1BH - 1.3TO- 1.2	F*1
H	5	26	SAI	TRH + 0.1TO+ 0.1	F*1
H	5	26	SAN	1BH - 1.3TO- 1.3	F*1
H	17	26	SAN	1BH - 1.2TO- 1.2	F*1
H	18	26	SAI	TRH + 0.1TO+ 0.2	F*1
H	18	26	MAN	1BH - 1.3TO- 1.2	F*1
H	8	27	SAN	1BH - 1.2TO- 1.1	F*1

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	12	27	MAI	TRH + 0.1TO+ 0.2	F*1
H	12	27	MAN	1BH - 1.3TO- 1.2	F*1
H	17	27	MAN	1BH - 1.3TO- 1.2	F*1
H	26	27	MAI	TRH + 0.1TO+ 0.2	F*1
H	26	27	MAN	1BH - 1.3TO- 1.2	F*1
H	27	27	MAI	TRH + 0.0TO+ 0.1	F*1
H	27	27	MAN	1BH - 1.3TO- 1.2	F*1
H	28	27	SAN	1BH - 1.2TO- 1.0	F*1
H	30	27	MAN	1BH - 1.2TO- 0.9	F*1
H	32	27	SAN	1BH - 1.1TO- 1.0	F*1
H	1	28	MAN	1BH - 1.4TO- 1.1	F*1
H	3	28	MAN	1BH - 1.2TO- 1.1	F*1
H	5	28	MAN	1BH - 1.2TO- 1.1	F*1
H	6	28	SAI	TRH - 0.0TO+ 0.1	F*1
H	6	28	SAN	1BH - 1.3TO- 1.3	F*1
H	9	28	SAN	1BH - 1.3TO- 1.0	F*1
H	11	28	SAN	1BH - 0.9TO- 0.8	F*1
H	14	28	SAN	1BH - 1.2TO- 1.1	F*1
H	15	28	SAN	1BH - 1.2TO- 1.1	F*1
H	16	28	MAN	1BH - 1.2TO- 1.1	F*1
H	18	28	MAI	TRH + 0.1TO+ 0.2	F*1
H	18	28	MAN	1BH - 1.3TO- 1.2	F*1
H	19	28	MAN	1BH - 1.3TO- 1.1	F*1
H	20	28	SAI	TRH + 0.1TO+ 0.2	F*1
H	20	28	SAN	1BH - 1.3TO- 1.2	F*1
H	21	28	MAN	1BH - 1.1TO- 0.9	F*1
H	23	28	MAN	1BH - 1.1TO- 1.0	F*1
H	38	28	MAN	1BH - 1.3TO- 1.1	F*1
H	4	29	MAN	1BH - 1.3TO- 1.0	F*1
H	7	29	MAN	1BH - 1.2TO- 1.1	F*1
H	16	29	SAN	1BH - 1.2TO- 1.0	F*1
H	18	29	SAN	1BH - 1.3TO- 1.0	F*1
H	23	29	MAI	TRH + 0.0TO+ 0.2	F*1
H	23	29	MAN	1BH - 1.3TO- 1.1	F*1
H	26	29	SAI	TRH + 0.1TO+ 0.2	F*1
H	26	29	INR	1BH - 1.2	F*1
H	27	29	MAI	TRH + 0.0TO+ 0.2	F*1
H	27	29	MAN	1BH - 1.3TO- 1.2	F*1
H	31	29	MAI	TRH - 0.1TO+ 0.2	F*1

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	31	29	MAN	1BH - 1.3TO- 1.2	F*1
H	1	30	MAI	TRH + 0.2TO+ 0.3	F*1
H	1	30	MAN	1BH - 1.4TO- 1.4	F*1
H	3	30	MAI	TRH + 0.1TO+ 0.3	F*1
H	3	30	MAN	1BH - 1.3TO- 1.2	F*1
H	4	30	MAN	1BH - 1.4TO- 1.2	F*1
H	6	30	MAN	1BH - 1.4TO- 1.2	F*1
H	8	30	SAN	1BH - 1.4TO- 1.2	F*1
H	9	30	MAN	1BH - 1.4TO- 1.0	F*1
H	21	30	MAI	TRH + 0.2TO+ 0.3	F*1
H	21	30	MAN	1BH - 1.3TO- 1.2	F*1
H	3	31	MAI	1BH - 1.2TO- 1.1	F*1
H	4	31	MAN	1BH - 1.4TO- 1.1	F*1
H	6	31	SAN	1BH - 1.4TO- 1.1	F*1
H	22	31	SAI	TRH + 0.2TO+ 0.3	F*1
H	22	31	SAN	1BH - 1.4TO- 1.2	F*1
H	23	31	SAN	1BH - 1.0TO- 1.0	F*1
H	25	31	MAN	1BH - 1.1TO- 0.9	F*1
H	37	31	MAI	TRH + 0.1TO+ 0.2	F*1
H	37	31	INR	1BH - 1.2	F*1
H	1	32	MAI	1BH - 1.6TO- 1.0	F*1
H	1	32	INF	TEH + 0.0TO+ 0.4	F*1
H	6	32	MAN	1BH - 1.4TO- 0.9	F*1
H	25	32	SAI	TRH + 0.2TO+ 0.2	F*1
H	25	32	SAI	TRH + 0.1TO+ 0.1	F*1
H	25	32	SAN	1BH - 1.3TO- 1.2	F*1
H	30	32	SAN	1BH - 1.3TO- 1.1	F*1
H	32	32	SAN	1BH - 1.1TO- 1.0	F*1
H	3	33	MAN	1BH - 1.3TO- 1.2	F*1
H	7	33	MAN	1BH - 1.3TO- 1.2	F*1
H	8	33	MAN	1BH - 1.3TO- 0.9	F*1
H	21	33	MAN	1BH - 1.2TO- 1.1	F*1
H	27	33	MAN	1BH - 1.3TO- 1.2	F*1
H	3	34	MAN	1BH - 1.2TO- 1.1	F*1
H	8	34	MAN	1BH - 1.4TO- 1.3	F*1
H	10	34	MAN	1BH - 1.4TO- 1.2	F*1
H	23	34	MAN	1BH - 1.3TO- 1.2	F*1
H	34	34	MAN	1BH - 1.3TO- 1.2	F*1
H	8	35	MAN	1BH - 1.3TO- 1.1	F*1

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	13	35	MAI	1BH - 1.4TO- 1.1	F*1
H	4	36	MAI	TRH + 0.2TO+ 0.2	F*1
H	4	36	MAN	1BH - 1.3TO- 1.3	F*1
H	6	36	MAN	1BH - 1.2TO- 1.1	F*1
H	7	36	SAI	TRH + 0.1TO+ 0.2	F*1
H	7	36	INR	1BH - 1.3	F*1
H	8	36	MAN	1BH - 1.3TO- 1.2	F*1
H	20	36	MAN	1BH - 1.4TO- 1.3	F*1
H	22	36	SAN	1BH - 1.4TO- 1.3	F*1
H	4	37	SAI	TRH + 0.1TO+ 0.1	F*1
H	4	37	SAN	1BH - 1.3TO- 1.3	F*1
H	6	37	MAN	1BH - 1.2TO- 1.0	F*1
H	8	37	MAN	1BH - 1.0TO- 0.9	F*1
H	13	37	MAN	1BH - 1.4TO- 0.9	F*1
H	21	37	SAN	1BH - 1.2TO- 1.1	F*1
H	27	37	MAI	TRH + 0.1TO+ 0.2	F*1
H	27	37	MAN	1BH - 1.3TO- 1.2	F*1
H	1	38	MAI	TRH + 0.1TO+ 0.2	F*1
H	1	38	MAN	1BH - 1.4TO- 1.3	F*1
H	3	38	MAN	1BH - 1.6TO- 1.4	F*1
H	4	38	MAN	1BH - 1.3TO- 1.1	F*1
H	7	38	MAN	1BH - 1.6TO- 1.4	F*1
H	9	38	MAN	1BH - 1.5TO- 1.4	F*1
H	13	38	SAN	1BH - 1.8TO- 1.6	F*1
H	24	38	SAI	TRH + 0.2TO+ 0.3	F*1
H	24	38	SAN	1BH - 1.2TO- 1.2	F*1
H	4	39	MAN	1BH - 1.2TO- 1.0	F*1
H	9	39	SAI	TRH + 0.1TO+ 0.2	F*1
H	9	39	SAN	1BH - 1.3TO- 1.2	F*1
H	12	39	SAN	1BH - 1.2TO- 1.1	F*1
H	20	39	SAN	1BH - 1.1TO- 1.1	F*1
H	21	39	SAN	1BH - 1.4TO- 1.3	F*1
H	25	39	MAN	1BH - 1.4TO- 1.3	F*1
H	3	40	MAI	TRH + 0.1TO+ 0.2	F*1
H	3	40	MAN	1BH - 1.3TO- 1.3	F*1
H	10	40	MAN	1BH - 1.3TO- 1.2	F*1
H	12	40	MAI	TRH + 0.0TO+ 0.2	F*1
H	12	40	MAN	1BH - 1.3TO- 1.3	F*1
H	12	40	MAN	1BH - 1.5TO- 1.4	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	3	41	SAI	TRH + 0.2TO+ 0.2	F*1
H	3	41	SAN	1BH - 1.3TO- 1.3	F*1
H	4	41	MAI	1BH - 1.4TO- 1.1	F*1
H	5	41	MAI	1BH - 1.3TO- 1.1	F*1
H	7	41	MAI	1BH - 1.3TO- 1.1	F*1
H	12	41	MAN	1BH - 1.3TO- 1.2	F*1
H	14	41	SAI	TRH + 0.8TO+ 0.9	F*1
H	14	41	MAN	1BH - 0.9TO- 0.2	F*1
H	2	42	MAN	1BH - 1.4TO- 1.3	F*1
H	3	42	MAI	TRH + 0.2TO+ 0.3	F*1
H	3	42	MAN	1BH - 1.3TO- 1.2	F*1
H	7	42	SAN	1BH - 1.2TO- 1.1	F*1
H	8	42	MAI	TRH + 0.2TO+ 0.2	F*1
H	8	42	MAN	1BH - 1.3TO- 1.2	F*1
H	9	42	SAI	TRH + 0.2TO+ 0.3	F*1
H	9	42	SAN	1BH - 1.2TO- 1.1	F*1
H	15	42	MAN	1BH - 1.3TO- 1.2	F*1
H	5	43	SAN	1BH - 1.3TO- 1.2	F*1
H	7	43	MAN	1BH - 1.2TO- 1.1	F*1
H	8	43	SAN	1BH - 1.2TO- 1.1	F*1
H	9	43	MAN	1BH - 1.2TO- 1.1	F*1
H	12	43	SAI	TRH + 0.2TO+ 0.2	F*1
H	12	43	INR	1BH - 1.2	F*1
H	23	43	MAN	1BH - 1.3TO- 1.1	F*1
H	24	43	MAI	1BH - 1.4TO- 0.9	F*1
H	4	44	MAI	TRH + 0.1TO+ 0.2	F*1
H	4	44	MAN	1BH - 1.3TO- 1.2	F*1
H	8	44	SAI	TRH + 0.1TO+ 0.2	F*1
H	8	44	SAN	1BH - 1.1TO- 1.1	F*1
H	12	44	MAI	TRH + 0.1TO+ 0.2	F*1
H	12	44	MAN	1BH - 1.3TO- 1.2	F*1
H	21	44	SAI	TRH + 0.2TO+ 0.2	F*1
H	21	44	INR	1BH - 1.3	F*1
H	24	44	MAN	1BH - 1.5TO- 1.3	F*1
H	3	45	MAN	1BH - 1.4TO- 0.8	F*1
H	9	45	SAN	1BH - 1.2TO- 1.0	F*1
H	12	45	MAI	1BH - 1.5TO- 0.9	F*1
H	13	45	MAI	1BH - 1.6TO- 1.1	F*1
H	14	45	SAI	TRH + 0.2TO+ 0.2	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	14	45	SAN	1BH - 1.3TO- 1.3	F*1
H	16	45	MAI	TRH + 0.2TO+ 0.3	F*1
H	16	45	MAN	1BH - 1.3TO- 1.2	F*1
H	30	45	MAI	1BH - 1.4TO- 1.3	F*1
H	34	45	SAI	TRH + 0.1TO+ 0.1	F*1
H	34	45	INR	1BH - 1.5	F*1
H	3	46	MAN	1BH - 1.3TO- 0.9	F*1
H	4	46	MAN	1BH - 1.2TO- 1.0	F*1
H	6	46	MAI	TRH + 0.1TO+ 0.2	F*1
H	6	46	MAN	1BH - 1.6TO- 1.5	F*1
H	8	46	MAN	1BH - 1.2TO- 1.0	F*1
H	14	46	MAN	1BH - 1.4TO- 1.3	F*1
H	21	46	SAI	TRH + 0.1TO+ 0.2	F*1
H	21	46	SAN	1BH - 1.3TO- 1.2	F*1
H	22	46	SAI	TRH + 0.2TO+ 0.3	F*1
H	22	46	SAN	1BH - 1.3TO- 1.2	F*1
H	3	47	INF	1BH - 1.3TO- 1.0	F*1
H	4	47	MAN	1BH - 1.2TO- 1.1	F*1
H	7	47	MAI	1BH - 1.4TO- 0.6	F*1
H	8	47	SAN	1BH - 1.2TO- 1.1	F*1
H	9	47	MAN	1BH - 1.2TO- 1.0	F*1
H	9	47	SAN	1BH - 0.7TO- 0.2	F*1
H	12	47	MAN	1BH - 1.3TO- 1.2	F*1
H	12	47	SAN	1BH - 0.8TO- 0.7	F*1
H	13	47	MAI	1BH - 1.5TO- 1.1	F*1
H	23	47	MAI	TRH + 0.1TO+ 0.2	F*1
H	23	47	INR	1BH - 1.2	F*1
H	24	47	MAI	TRH + 0.1TO+ 0.3	F*1
H	24	47	MAN	1BH - 1.3TO- 1.3	F*1
H	36	47	MAI	TRH + 0.1TO+ 0.3	F*1
H	36	47	INR	1BH - 1.8	F*1
H	37	47	SAI	TRH + 0.1TO+ 0.2	F*1
H	37	47	SAN	1BH - 1.7TO- 1.6	F*1
H	4	48	MAN	1BH - 1.1TO- 1.0	F*1
H	6	48	SAN	1BH - 1.1TO- 1.0	F*1
H	12	48	MAI	TRH + 0.0TO+ 0.2	F*1
H	12	48	MAN	1BH - 1.3TO- 1.2	F*1
H	13	49	MAN	1BH - 1.4TO- 1.3	F*1
H	14	49	SAI	1BH - 0.6TO- 0.5	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	14	49	MAN	1BH - 1.6TO- 1.4	F*1
H	29	49	MAI	TRH + 0.1TO+ 0.2	F*1
H	29	49	MAN	1BH - 1.3TO- 1.1	F*1
H	31	49	SAI	TRH + 0.0TO+ 0.2	F*1
H	31	49	SAN	1BH - 1.3TO- 1.2	F*1
H	2	50	MAN	1BH - 1.5TO- 0.8	F*1
H	4	50	MAN	1BH - 1.3TO- 1.1	F*1
H	5	50	MAN	1BH - 1.2TO- 1.1	F*1
H	7	50	MAN	1BH - 1.1TO- 0.9	F*1
H	10	50	MAN	1BH - 1.3TO- 1.1	F*1
H	12	50	MAN	1BH - 1.3TO- 1.2	F*1
H	21	50	SAI	TRH + 0.1TO+ 0.2	F*1
H	21	50	SAN	1BH - 1.3TO- 1.3	F*1
H	25	50	SAI	TRH + 0.2TO+ 0.2	F*1
H	25	50	SAN	1BH - 1.3TO- 1.2	F*1
H	1	51	SAN	1BH - 1.3TO- 1.2	F*1
H	4	51	MAN	1BH - 1.2TO- 1.2	F*1
H	5	51	MAN	1BH - 1.3TO- 1.1	F*1
H	8	51	MAN	1BH - 1.3TO- 1.1	F*1
H	11	51	SAI	TRH + 0.1TO+ 0.2	F*1
H	11	51	SAN	1BH - 1.9TO- 1.7	F*1
H	14	51	SAI	TRH + 0.1TO+ 0.2	F*1
H	14	51	INR	1BH - 1.2	F*1
H	1	52	SAN	1BH - 1.2TO- 1.1	F*1
H	2	52	MAN	1BH - 1.3TO- 1.2	F*1
H	3	52	MAN	1BH - 1.2TO- 1.1	F*1
H	3	52	MAN	1BH - 1.2TO- 1.1	F*1
H	4	52	SAN	1BH - 1.3TO- 1.2	F*1
H	5	52	MAI	TRH + 0.1TO+ 0.2	F*1
H	5	52	MAN	1BH - 1.7TO- 1.6	F*1
H	11	52	MAI	TRH + 0.1TO+ 0.2	F*1
H	11	52	MAN	1BH - 1.7TO- 1.6	F*1
H	14	52	MAN	1BH - 1.5TO- 0.8	F*1
H	22	52	SAI	TRH + 0.2TO+ 0.3	F*1
H	22	52	SAN	1BH - 1.3TO- 1.2	F*1
H	4	53	SAN	1BH - 1.2TO- 1.0	F*1
H	7	53	SAN	1BH - 1.4TO- 1.2	F*1
H	10	53	SAN	1BH - 1.4TO- 1.2	F*1
H	1	54	SAN	1BH - 1.4TO- 1.3	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	7	54	MAN	1BH - 1.2TO- 1.0	F*1
H	11	54	MAI	1BH - 1.5TO- 1.0	F*1
H	14	54	MAI	TRH - 0.1TO- 0.0	F*1
H	14	54	MAN	1BH - 1.4TO- 1.3	F*1
H	19	54	MAN	1BH - 1.5TO- 1.3	F*1
H	21	54	MAI	TRH + 0.1TO+ 0.3	F*1
H	21	54	MAN	1BH - 1.1TO- 1.1	F*1
H	4	55	MAN	1BH - 1.6TO- 1.0	F*1
H	7	55	SAI	TRH + 0.1TO+ 0.2	F*1
H	7	55	SAN	1BH - 1.6TO- 1.5	F*1
H	10	55	MAN	1BH - 1.5TO- 1.0	F*1
H	11	55	SAI	1BH - 1.5TO- 1.2	F*1
H	23	55	MAI	TRH + 0.2TO+ 0.4	F*1
H	23	55	MAN	1BH - 1.3TO- 1.2	F*1
H	2	56	MAI	TRH + 0.1TO+ 0.2	F*1
H	2	56	MAN	1BH - 1.3TO- 1.2	F*1
H	4	56	MAI	TRH + 0.1TO+ 0.2	F*1
H	4	56	MAN	1BH - 1.6TO- 1.5	F*1
H	6	56	MAN	1BH - 1.4TO- 1.2	F*1
H	7	56	MAN	1BH - 1.4TO- 1.2	F*1
H	10	56	MAN	1BH - 1.3TO- 1.0	F*1
H	11	56	MAN	1BH - 1.3TO- 1.1	F*1
H	16	56	SAI	TRH + 0.1TO+ 0.2	F*1
H	16	56	SAN	1BH - 1.3TO- 1.3	F*1
H	1	57	SAN	1BH - 1.3TO- 1.3	F*1
H	4	57	SAI	TRH + 0.0TO+ 0.2	F*1
H	4	57	SAN	1BH - 1.3TO- 1.3	F*1
H	6	57	MAN	1BH - 1.4TO- 1.2	F*1
H	7	57	MAI	TRH + 0.0TO+ 0.2	F*1
H	7	57	MAN	1BH - 1.4TO- 1.3	F*1
H	8	57	MAI	1BH - 0.5TO- 0.2	F*1
H	8	57	MAN	1BH - 1.5TO- 1.3	F*1
H	11	57	MAN	1BH - 1.2TO- 1.2	F*1
H	13	57	MAI	1BH - 1.5TO- 1.0	F*1
H	14	57	SAI	TRH + 0.1TO+ 0.2	F*1
H	14	57	SAN	1BH - 1.3TO- 1.3	F*1
H	15	57	MAI	TRH + 0.0TO+ 0.2	F*1
H	15	57	MAN	1BH - 1.4TO- 1.3	F*1
H	17	57	SAI	TRH + 0.1TO+ 0.2	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	17	57	SAN	1BH - 1.3TO- 1.3	F*1
H	23	57	MAN	1BH - 1.2TO- 1.0	F*1
H	5	58	MAN	1BH - 1.4TO- 1.2	F*1
H	9	58	SAN	1BH - 1.3TO- 1.2	F*1
H	11	58	SAI	TRH + 0.1TO+ 0.1	F*1
H	11	58	INR	1BH - 1.2	F*1
H	14	58	MAN	1BH - 1.5TO- 1.4	F*1
H	16	58	MAN	1BH - 1.3TO- 0.9	F*1
H	21	58	MAN	1BH - 1.3TO- 1.2	F*1
H	1	59	MAI	TRH + 0.1TO+ 0.2	F*1
H	1	59	MAN	1BH - 1.4TO- 1.3	F*1
H	3	59	SAI	TRH + 0.1TO+ 0.2	F*1
H	3	59	SAN	1BH - 1.3TO- 1.2	F*1
H	8	59	SAN	1BH - 1.6TO- 1.4	F*1
H	9	59	MAI	TRH + 0.0TO+ 0.1	F*1
H	9	59	MAN	1BH - 1.4TO- 1.3	F*1
H	10	59	MAN	1BH - 1.2TO- 1.1	F*1
H	11	59	MAN	1BH - 1.3TO- 1.1	F*1
H	13	59	MAN	1BH - 1.2TO- 1.1	F*1
H	14	59	MAN	1BH - 1.4TO- 1.3	F*1
H	2	60	SAI	1BH - 4.0TO- 3.9	F*1
H	2	60	MAN	1BH - 1.4TO- 1.3	F*1
H	3	60	MAN	1BH - 1.5TO- 1.3	F*1
H	4	60	MAN	1BH - 1.4TO- 1.1	F*1
H	5	60	MAN	1BH - 1.5TO- 1.3	F*1
H	7	60	SAN	1BH - 1.5TO- 1.2	F*1
H	11	60	MAN	1BH - 1.5TO- 1.1	F*1
H	14	60	MAN	1BH - 1.4TO- 1.2	F*1
H	16	60	MAN	1BH - 1.2TO- 1.1	F*1
H	2	61	MAN	1BH - 1.6TO- 1.3	F*1
H	3	61	MAN	1BH - 2.2TO- 2.1	F*1
H	3	61	MAN	1BH - 1.5TO- 1.4	F*1
H	4	61	SAI	TRH - 0.0TO+ 0.1	F*1
H	4	61	INR	1BH - 1.3	F*1
H	5	61	MAN	1BH - 1.5TO- 1.4	F*1
H	7	61	MAN	1BH - 1.5TO- 1.3	F*1
H	9	61	MAN	1BH - 1.4TO- 1.4	F*1
H	10	61	MAN	1BH - 1.3TO- 1.1	F*1
H	17	61	MAN	1BH - 1.3TO- 1.1	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	31	61	VOL	TRH - 2.2TO- 2.0	F*1
H	31	61	VOL	TRH - 0.3TO- 0.1	F*1
H	31	61	VON	TRH - 0.3TO- 0.1	F*1
H	31	61	VON	1BH - 1.5TO- 1.4	F*1
H	31	61	VON	1BH - 3.6TO- 3.4	F*1
H	31	61	VON	1BH - 3.0TO- 3.0	F*1
H	31	61	VON	1BH - 1.7TO- 1.5	F*1
H	2	62	MAN	1BH - 1.4TO- 1.4	F*1
H	4	62	MAN	1BH - 1.3TO- 1.2	F*1
H	5	62	MAN	1BH - 1.5TO- 1.3	F*1
H	8	62	MAN	1BH - 1.3TO- 1.3	F*1
H	10	62	MAN	1BH - 1.2TO- 1.2	F*1
H	12	62	SAN	1BH - 1.3TO- 1.2	F*1
H	13	62	MAI	TRH + 0.0TO+ 0.1	F*1
H	13	62	MAN	1BH - 1.4TO- 1.3	F*1
H	14	62	MAN	1BH - 3.8TO- 3.7	F*1
H	14	62	SAN	1BH - 1.4TO- 1.2	F*1
H	25	62	SAN	1BH - 1.3TO- 1.2	F*1
H	1	63	SAN	1BH - 1.4TO- 1.3	F*1
H	3	63	MAN	1BH - 1.5TO- 1.3	F*1
H	5	63	MAN	1BH - 1.4TO- 1.3	F*1
H	8	63	MAN	1BH - 1.2TO- 1.0	F*1
H	9	63	SAI	TRH + 0.1TO+ 0.2	F*1
H	9	63	SAN	1BH - 1.4TO- 1.3	F*1
H	14	63	MAI	TRH + 0.1TO+ 0.2	F*1
H	14	63	MAN	1BH - 1.4TO- 1.4	F*1
H	16	63	SAI	TRH + 0.1TO+ 0.2	F*1
H	16	63	SAN	1BH - 1.4TO- 1.3	F*1
H	3	64	SAN	1BH - 1.5TO- 1.4	F*1
H	4	64	SAN	1BH - 1.5TO- 1.4	F*1
H	5	64	MAN	1BH - 1.9TO- 1.4	F*1
H	6	64	MAN	1BH - 1.2TO- 1.1	F*1
H	7	64	MAN	1BH - 1.4TO- 1.3	F*1
H	8	64	SAN	1BH - 1.4TO- 1.3	F*1
H	12	64	MAN	1BH - 1.3TO- 1.2	F*1
H	14	64	MAN	1BH - 1.3TO- 1.2	F*1
H	17	64	SAN	1BH - 1.2TO- 1.1	F*1
H	34	64	MAI	TRH + 0.1TO+ 0.2	F*1
H	34	64	INR	1BH - 1.2	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	4	65	SAI	TRH - 0.0TO+ 0.0	F*1
H	4	65	SAN	1BH - 1.4TO- 1.4	F*1
H	5	65	MAN	1BH - 1.4TO- 1.2	F*1
H	8	65	SAN	1BH - 1.2TO- 1.2	F*1
H	11	65	MAN	1BH - 1.3TO- 1.2	F*1
H	12	65	MAN	1BH - 1.4TO- 1.3	F*1
H	14	65	SAI	TRH + 0.1TO+ 0.2	F*1
H	14	65	INR	1BH - 1.2	F*1
H	16	65	SAN	1BH - 1.2TO- 1.2	F*1
H	5	66	MAI	1BH - 1.3TO- 1.1	F*1
H	10	66	MAN	1BH - 1.2TO- 1.1	F*1
H	16	66	SAN	1BH - 2.1TO- 2.1	F*1
H	16	66	SAN	1BH - 3.6TO- 3.5	F*1
H	17	66	SAI	TRH + 0.2TO+ 0.2	F*1
H	17	66	SAN	1BH - 1.4TO- 1.4	F*1
H	18	66	SAI	TRH + 0.2TO+ 0.2	F*1
H	18	66	SAN	1BH - 1.4TO- 1.3	F*1
H	1	67	MAI	TRH + 0.1TO+ 0.2	F*1
H	1	67	MAN	1BH - 1.3TO- 1.3	F*1
H	5	67	MAI	TRH + 0.1TO+ 0.2	F*1
H	5	67	MAN	1BH - 1.4TO- 1.3	F*1
H	7	67	MAN	1BH - 1.4TO- 1.0	F*1
H	11	67	SAI	TRH + 0.2TO+ 0.2	F*1
H	11	67	SAN	1BH - 1.3TO- 1.3	F*1
H	24	67	MAN	1BH - 1.1TO- 1.0	F*1
H	25	67	SAI	TRH + 0.1TO+ 0.1	F*1
H	25	67	SAI	TRH - 2.4TO- 2.4	F*1
H	25	67	SAN	1BH - 3.9TO- 3.8	F*1
H	25	67	INR	1BH - 1.3	F*1
H	4	68	MAI	1BH - 1.6TO- 1.2	F*1
H	5	68	MAN	1BH - 1.5TO- 1.3	F*1
H	7	68	MAN	1BH - 1.4TO- 1.2	F*1
H	34	68	MAN	1BH - 1.4TO- 1.2	F*1
H	11	69	SAN	1BH - 1.4TO- 1.3	F*1
H	11	69	SAN	1BH - 1.3TO- 1.2	F*1
H	12	69	MAI	TRH + 0.1TO+ 0.2	F*1
H	12	69	MAN	1BH - 1.4TO- 1.3	F*1
H	17	69	SAI	TRH + 0.1TO+ 0.2	F*1
H	17	69	SAN	1BH - 1.3TO- 1.3	F*1

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LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	5	70	MAN	1BH - 1.4TO- 1.3	F*1
H	6	70	MAI	TRH + 0.1TO+ 0.2	F*1
H	6	70	MAN	1BH - 1.4TO- 1.4	F*1
H	9	70	MAI	TRH - 0.1TO- 0.0	F*1
H	9	70	INR	1BH - 1.2	F*1
H	3	71	MAN	1BH - 1.3TO- 1.2	F*1
H	5	71	MAI	TRH + 0.1TO+ 0.1	F*1
H	5	71	MAN	1BH - 1.4TO- 1.3	F*1
H	9	71	SAI	TRH + 0.1TO+ 0.1	F*1
H	9	71	SAN	1BH - 1.5TO- 1.4	F*1
H	10	71	MAN	1BH - 1.4TO- 1.2	F*1
H	11	71	MAN	1BH - 1.2TO- 1.1	F*1
H	5	72	SAI	TRH + 0.1TO+ 0.1	F*1
H	5	72	SAN	1BH - 1.4TO- 1.4	F*1
H	8	72	MAN	1BH - 1.3TO- 1.1	F*1
H	11	72	MAN	1BH - 1.3TO- 1.2	F*1
H	3	73	MAN	1BH - 1.4TO- 1.2	F*1
H	5	73	MAN	1BH - 1.3TO- 1.1	F*1
H	10	73	SAI	TRH + 0.1TO+ 0.2	F*1
H	10	73	SAN	1BH - 1.5TO- 1.5	F*1
H	11	73	MAN	1BH - 1.3TO- 1.2	F*1
H	3	74	SAN	1BH - 1.3TO- 1.2	F*1
H	5	74	MAN	1BH - 1.3TO- 1.1	F*1
H	9	74	MAN	1BH - 1.3TO- 1.1	F*1
H	11	74	MAN	1BH - 1.3TO- 1.1	F*1
H	5	75	MAN	1BH - 1.5TO- 1.3	F*1
H	7	77	SAN	1BH - 1.4TO- 1.3	F*1
H	11	77	SAI	TRH + 0.1TO+ 0.2	F*1
H	11	77	SAN	1BH - 1.5TO- 1.4	F*1
H	3	78	MAI	TRH + 0.1TO+ 0.2	F*1
H	3	78	MAN	1BH - 1.5TO- 1.4	F*1
H	7	78	MAN	1BH - 1.4TO- 1.1	F*1
H	11	78	SAN	1BH - 1.3TO- 1.2	F*1
H	7	79	MAN	1BH - 1.3TO- 1.2	F*1
H	19	79	MAI	TRH + 0.1TO+ 0.2	F*1
H	19	79	MAN	1BH - 1.6TO- 1.5	F*1
H	28	80	SAN	1BH - 1.3TO- 1.2	F*1
H	11	81	SAI	TRH + 0.0TO+ 0.1	F*1
H	11	81	SAN	1BH - 1.5TO- 1.4	F*1

21 STEAM GENERATOR F*1 TUBES, February 26,1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	9	83	MAI	TRH - 0.0TO+ 0.0	F*1
H	9	83	MAN	1BH - 1.5TO- 1.5	F*1
H	18	86	SAN	1BH - 1.4TO- 1.3	F*1

Grand Count 587

NOTE: SOME TUBES ARE COUNTED MORE THAN ONCE

1BH	=	BOTTOM OF ADDITIONAL HARD ROLL 1
F*1	=	F* TUBE WITH ONE ADDITIONAL ROLL EXPANSION
INR	=	INDICATION NOT REPORTABLE
MAI	=	MULTIPLE AXIAL INDICATION
MAN	=	MULTIPLE AXIAL INDICATION WITH NO CHANGE
SAI	=	SINGLE AXIAL INDICATION
SAN	=	SINGLE AXIAL INDICATION WITH NO CHANGE
TRH	=	TOP OF ROLL HOT LEG
VOL	=	VOLUMETRIC INDICATION
VON	=	VOLUMETRIC INDICATION WITH NO CHANGE
NO CHANGE	=	INCREASE IN LENGTH < 0.1 INCH OR MOVE IN AXIAL DIRECTION <0.1 INCH

21 STEAM GENERATOR F*2 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	4	25	SAI	1BH + 1.1TO+ 1.5	F*2
H	4	25	MAI	TRH + 0.0TO+ 0.2	F*2
H	4	25	MAN	1BH - 1.3TO- 1.2	F*2
H	4	25	SAN	2BH - 3.1TO- 3.0	F*2
H	4	25	SAN	2BH - 0.8TO- 0.4	F*2
H	19	25	MAI	TRH + 0.1TO+ 0.2	F*2
H	19	25	MAN	2BH - 3.0TO- 3.0	F*2
H	19	25	MAN	1BH - 1.3TO- 1.2	F*2
H	13	29	SAN	2BH - 3.6TO- 3.5	F*2
H	5	36	MAI	1BH - 0.4TO+ 0.0	F*2
H	5	36	MAN	1BH - 1.2TO- 1.0	F*2
H	5	36	MAN	2BH - 3.0TO- 2.9	F*2
H	5	36	MAN	2BH - 2.6TO- 1.9	F*2
H	14	36	MAI	TRH + 0.1TO+ 0.2	F*2
H	14	36	INR	2BH - 3.0	F*2
H	14	36	INR	1BH - 1.3	F*2
H	14	40	MAI	2BH - 3.3TO- 1.1	F*2
H	14	40	MAN	2BH - 3.4TO- 3.3	F*2
H	10	44	MAN	2BH - 3.4TO- 3.2	F*2
H	10	44	SAN	2BH - 2.9TO- 2.0	F*2
H	12	46	MAI	TRH + 0.1TO+ 0.3	F*2
H	12	46	MAI	1BH - 0.9TO- 0.1	F*2
H	12	46	MAN	1BH - 1.3TO- 1.2	F*2
H	12	46	MAN	2BH - 2.9TO- 2.9	F*2
H	12	46	MAN	2BH - 2.6TO- 1.7	F*2
H	20	46	SAN	2BH - 2.1TO- 0.9	F*2
H	20	46	SAN	2BH - 3.5TO- 3.1	F*2
H	6	47	SAN	2BH - 2.8TO- 2.1	F*2
H	18	47	MAI	TRH + 0.1TO+ 0.3	F*2
H	18	47	MAN	1BH - 1.4TO- 1.3	F*2
H	18	47	MAN	2BH - 3.1TO- 3.1	F*2
H	18	47	MAN	2BH - 4.5TO- 4.4	F*2
H	18	47	MAN	2BH - 4.5TO- 4.4	F*2
H	18	47	MAN	2BH - 4.5TO- 4.5	F*2
H	10	48	SAN	2BH - 2.8TO- 2.2	F*2
H	10	48	SAN	2BH - 3.2TO- 3.2	F*2
H	8	49	MAN	2BH - 3.1TO- 3.0	F*2
H	8	49	SAN	2BH - 2.9TO- 1.9	F*2

21 STEAM GENERATOR F*2 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	14	50	SAI	1BH - 0.4TO- 0.0	F*2
H	14	50	MAN	1BH - 1.3TO- 1.2	F*2
H	14	50	MAN	2BH - 2.9TO- 2.8	F*2
H	14	50	SAN	2BH - 2.0TO- 1.8	F*2
H	12	52	SAI	TRH + 0.1TO+ 0.2	F*2
H	12	52	SAI	1BH - 0.9TO- 0.7	F*2
H	12	52	SAI	1BH - 0.0TO+ 0.2	F*2
H	12	52	SAN	1BH - 1.7TO- 1.7	F*2
H	12	52	SAN	2BH - 3.1TO- 3.0	F*2
H	12	52	SAN	2BH - 2.4TO- 2.1	F*2
H	12	52	SAN	2BH - 1.9TO- 1.8	F*2

Grand Count 49

NOTE: SOME TUBES ARE COUNTED MORE THAN ONCE

1BH = BOTTOM OF ADDITIONAL HARD ROLL 1
2BH = BOTTOM OF ADDITIONAL HARD ROLL 2
F*2 = F* TUBE WITH TWO ADDITIONAL ROLL EXPANSIONS
INR = INDICATION NOT REPORTABLE
MAI = MULTIPLE AXIAL INDICATION
MAN = MULTIPLE AXIAL INDICATION WITH NO CHANGE
SAI = SINGLE AXIAL INDICATION
SAN = SINGLE AXIAL INDICATION WITH NO CHANGE
TRH = TOP OF ROLL HOT LEG
VOL = VOLUMETRIC INDICATION
VON = VOLUMETRIC INDICATION WITH NO CHANGE
NO CHANGE = INCREASE IN LENGTH < 0.1 INCH OR MOVE IN AXIAL DIRECTION <0.1 INCH

21 STEAM GENERATOR F*2 TUBES, February 26, 97

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	4	25	SAI	1BH + 1.1TO+ 1.5	F*2
H	4	25	MAI	TRH + 0.0TO+ 0.2	F*2
H	4	25	MAN	1BH - 1.3TO- 1.2	F*2
H	4	25	SAN	2BH - 3.1TO- 3.0	F*2
H	4	25	SAN	2BH - 0.8TO- 0.4	F*2
H	19	25	MAI	TRH + 0.1TO+ 0.2	F*2
H	19	25	MAN	2BH - 3.0TO- 3.0	F*2
H	19	25	MAN	1BH - 1.3TO- 1.2	F*2
H	13	29	SAN	2BH - 3.6TO- 3.5	F*2
H	5	36	MAI	1BH - 0.4TO+ 0.0	F*2
H	5	36	MAN	1BH - 1.2TO- 1.0	F*2
H	5	36	MAN	2BH - 3.0TO- 2.9	F*2
H	5	36	MAN	2BH - 2.6TO- 1.9	F*2
H	14	36	MAI	TRH + 0.1TO+ 0.2	F*2
H	14	36	INR	2BH - 3.0	F*2
H	14	36	INR	1BH - 1.3	F*2
H	14	40	MAI	2BH - 3.3TO- 1.1	F*2
H	14	40	MAN	2BH - 3.4TO- 3.3	F*2
H	10	44	MAN	2BH - 3.4TO- 3.2	F*2
H	10	44	SAN	2BH - 2.9TO- 2.0	F*2
H	12	46	MAI	TRH + 0.1TO+ 0.3	F*2
H	12	46	MAI	1BH - 0.9TO- 0.1	F*2
H	12	46	MAN	1BH - 1.3TO- 1.2	F*2
H	12	46	MAN	2BH - 2.9TO- 2.9	F*2
H	12	46	MAN	2BH - 2.6TO- 1.7	F*2
H	20	46	SAN	2BH - 2.1TO- 0.9	F*2
H	20	46	SAN	2BH - 3.5TO- 3.1	F*2
H	6	47	SAN	2BH - 2.8TO- 2.1	F*2
H	18	47	MAI	TRH + 0.1TO+ 0.3	F*2
H	18	47	MAN	1BH - 1.4TO- 1.3	F*2
H	18	47	MAN	2BH - 3.1TO- 3.1	F*2
H	18	47	MAN	2BH - 4.5TO- 4.4	F*2
H	18	47	MAN	2BH - 4.5TO- 4.4	F*2
H	18	47	MAN	2BH - 4.5TO- 4.5	F*2
H	10	48	SAN	2BH - 2.8TO- 2.2	F*2
H	10	48	SAN	2BH - 3.2TO- 3.2	F*2
H	8	49	MAN	2BH - 3.1TO- 3.0	F*2
H	8	49	SAN	2BH - 2.9TO- 1.9	F*2

21 STEAM GENERATOR F*2 TUBES, February 26, 97

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	14	50	SAI	1BH - 0.4TO- 0.0	F*2
H	14	50	MAN	1BH - 1.3TO- 1.2	F*2
H	14	50	MAN	2BH - 2.9TO- 2.8	F*2
H	14	50	SAN	2BH - 2.0TO- 1.8	F*2
H	12	52	SAI	TRH + 0.1TO+ 0.2	F*2
H	12	52	SAI	1BH - 0.9TO- 0.7	F*2
H	12	52	SAI	1BH - 0.0TO+ 0.2	F*2
H	12	52	SAN	1BH - 1.7TO- 1.7	F*2
H	12	52	SAN	2BH - 3.1TO- 3.0	F*2
H	12	52	SAN	2BH - 2.4TO- 2.1	F*2
H	12	52	SAN	2BH - 1.9TO- 1.8	F*2

Grand Count NOTE: SOME TUBES ARE COUNTED MORE THAN ONCE 49

1BH = BOTTOM OF ADDITIONAL HARD ROLL 1
2BH = BOTTOM OF ADDITIONAL HARD ROLL 2
F*2 = F* TUBE WITH TWO ADDITIONAL ROLL EXPANSIONS
INR = INDICATION NOT REPORTABLE
MAI = MULTIPLE AXIAL INDICATION
MAN = MULTIPLE AXIAL INDICATION WITH NO CHANGE
SAI = SINGLE AXIAL INDICATION
SAN = SINGLE AXIAL INDICATION WITH NO CHANGE
TRH = TOP OF ROLL HOT LEG
VOL = VOLUMETRIC INDICATION
VON = VOLUMETRIC INDICATION WITH NO CHANGE
NO CHANGE = INCREASE IN LENGTH < 0.1 INCH OR MOVE IN AXIAL DIRECTION <0.1 INCH

22 STEAM GENERATOR F*0 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	1	7	SAI	TRH - 2.3TO- 2.2	F*0
H	1	33	MAI	TRH - 2.3TO- 2.2	F*0
H	1	34	SAI	TRH - 2.8TO- 2.5	F*0
H	1	37	MAI	TRH - 2.7TO- 2.4	F*0
H	1	41	MAI	TRH - 2.3TO- 2.2	F*0
H	2	42	SAI	TRH - 2.7TO- 2.6	F*0
H	1	43	SAI	TRH - 2.8TO- 2.7	F*0
H	1	45	MAI	TRH - 2.7TO- 2.4	F*0
H	9	48	SAI	TRH - 2.7TO- 2.5	F*0
H	5	49	SAI	TRH - 2.7TO- 2.6	F*0
H	7	49	SAI	TRH - 2.8TO- 2.7	F*0
H	1	50	SAI	TRH - 2.5TO- 2.2	F*0
H	7	50	SAN	TRH - 2.6TO- 2.5	F*0
H	1	51	MAN	TRH - 2.5TO- 2.3	F*0
H	4	51	MAI	TRH - 2.6TO- 2.5	F*0
H	7	51	SAI	TRH - 2.8TO- 2.7	F*0
H	1	52	MAN	TRH - 2.5TO- 2.4	F*0
H	1	53	MAI	TRH - 2.4TO- 2.3	F*0
H	1	56	MAI	TRH - 2.4TO- 2.3	F*0
H	34	58	MAI	TRH - 2.2TO- 2.1	F*0
H	7	60	SAI	TRH - 2.4TO- 2.4	F*0
H	1	62	MAN	TRH - 2.4TO- 2.3	F*0
H	1	63	SAI	TRH - 2.4TO- 2.3	F*0
H	34	63	MAI	TRH - 2.3TO- 2.2	F*0
H	1	64	SAI	TRH - 2.4TO- 2.4	F*0
H	37	64	MAI	TRH - 2.3TO- 2.3	F*0
H	7	65	SAN	TRH - 2.4TO- 2.3	F*0
H	8	65	SAI	TRH - 2.5TO- 2.4	F*0
H	34	65	MAI	TRH - 2.3TO- 2.1	F*0
H	37	65	SAI	TRH - 2.2TO- 2.1	F*0
H	37	67	MAI	TRH - 2.3TO- 2.1	F*0
H	8	68	SAI	TRH - 2.4TO- 2.4	F*0
H	34	68	MAI	TRH - 2.3TO- 2.2	F*0
H	1	69	MAN	TRH - 2.4TO- 2.2	F*0
H	1	70	MAN	TRH - 2.5TO- 2.3	F*0
H	22	71	MAI	TRH - 2.4TO- 2.4	F*0
H	24	71	MAI	TRH - 2.4TO- 2.4	F*0
H	1	72	MAN	TRH - 2.9TO- 2.6	F*0

22 STEAM GENERATOR F*0 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	37	72	SAI	TRH - 2.2TO- 2.1	F*0
H	1	73	MAN	TRH - 2.9TO- 2.7	F*0
H	1	74	MAN	TRH - 2.8TO- 2.2	F*0
H	1	75	MAI	TRH - 2.6TO- 2.4	F*0
H	1	76	MAI	TRH - 2.5TO- 2.4	F*0
H	1	77	MAN	TRH - 2.4TO- 2.3	F*0
H	1	78	SAN	TRH - 2.3TO- 2.1	F*0
H	1	79	MAN	TRH - 2.3TO- 2.2	F*0
H	1	80	MAN	TRH - 2.3TO- 2.2	F*0
H	1	81	MAN	TRH - 2.3TO- 2.2	F*0
H	1	82	MAN	TRH - 2.3TO- 2.2	F*0
H	1	83	SAN	TRH - 2.3TO- 2.2	F*0
H	1	84	SAN	TRH - 2.6TO- 2.4	F*0
H	1	85	SAI	TRH - 2.4TO- 2.3	F*0
H	6	94	MAI	TRH - 2.6TO- 2.4	F*0

Grand Count 53

F*0 = F* TUBE WITHOUT ADDITIONAL ROLL EXPANSION
MAI = MULTIPLE AXIAL INDICATION
MAN = MULTIPLE AXIAL INDICATION WITH NO CHANGE
SAI = SINGLE AXIAL INDICATION
SAN = SINGLE AXIAL INDICATION WITH NO CHANGE
TRH = TOP OF ROLL HOT LEG
NO CHANGE = INCREASE IN LENGTH < 0.1 INCH OR MOVE IN AXIAL DIRECTION <0.1 INCH

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	1	10	SAI	TRH - 0.1TO+ 0.1	F*1
H	1	10	SAN	RTR - 1.2TO- 1.1	F*1
H	1	10	SAN	RTR - 1.2TO- 1.2	F*1
H	1	10	SAN	1BH - 2.4TO- 2.3	F*1
H	4	14	SAI	TRH + 0.0TO+ 0.0	F*1
H	4	14	SAN	1BH - 2.3TO- 2.3	F*1
H	24	15	MAN	1BH - 1.5TO- 1.3	F*1
H	1	17	MAN	1BH - 2.4TO- 2.1	F*1
H	25	17	SAI	TRH - 0.1TO+ 0.1	F*1
H	25	17	SAN	1BH - 1.4TO- 1.4	F*1
H	1	18	MAN	1BH - 2.2TO- 2.0	F*1
H	4	19	SAI	TRH - 0.0TO+ 0.1	F*1
H	4	19	SAN	1BH - 2.3TO- 2.2	F*1
H	21	19	VOL	TRH - 1.2TO- 1.0	F*1
H	21	19	VON	1BH - 2.7TO- 2.4	F*1
H	1	20	MAN	1BH - 2.3TO- 2.1	F*1
H	1	21	MAN	1BH - 2.3TO- 2.1	F*1
H	18	22	SAN	1BH - 1.4TO- 1.3	F*1
H	28	22	SAI	TRH - 0.1TO+ 0.1	F*1
H	28	22	SAN	1BH - 1.5TO- 1.5	F*1
H	22	23	SAN	1BH - 1.7TO- 1.5	F*1
H	27	24	MAI	TRH - 0.0TO+ 0.0	F*1
H	27	24	MAN	1BH - 1.6TO- 1.5	F*1
H	28	24	MAI	1BH - 1.5TO- 1.4	F*1
H	21	25	SAI	TRH + 0.0TO+ 0.1	F*1
H	21	25	SAN	1BH - 1.5TO- 1.4	F*1
H	23	25	MAN	1BH - 1.5TO- 1.4	F*1
H	32	25	SAI	TRH + 0.0TO+ 0.1	F*1
H	32	25	SAN	1BH - 1.4TO- 1.4	F*1
H	19	26	MAI	TRH + 0.0TO+ 0.2	F*1
H	19	26	MAN	1BH - 1.7TO- 1.6	F*1
H	22	26	SAI	TRH - 0.1TO+ 0.0	F*1
H	22	26	SAN	1BH - 1.6TO- 1.5	F*1
H	28	26	SAI	TRH - 0.1TO+ 0.0	F*1
H	28	26	SAN	1BH - 1.5TO- 1.5	F*1
H	20	27	SAI	TRH + 0.1TO+ 0.1	F*1
H	20	27	SAN	1BH - 1.5TO- 1.5	F*1
H	19	29	SAI	TRH + 0.0TO+ 0.1	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	19	29	SAN	RTR - 0.4TO- 0.4	F*1
H	19	29	SAN	RTR - 0.4TO- 0.3	F*1
H	19	29	SAN	1BH - 1.7TO- 1.6	F*1
H	24	29	SAI	TRH - 0.0TO+ 0.1	F*1
H	24	29	SAN	RTR - 0.4TO- 0.4	F*1
H	24	29	SAN	RTR - 0.4TO- 0.2	F*1
H	24	29	SAN	1BH - 1.6TO- 1.5	F*1
H	29	29	SAI	TRH - 0.0TO+ 0.1	F*1
H	29	29	SAN	1BH - 1.6TO- 1.5	F*1
H	32	29	SAI	TRH - 0.0TO+ 0.1	F*1
H	32	29	SAN	RTR - 0.5TO- 0.4	F*1
H	32	29	SAN	RTR - 0.3TO- 0.3	F*1
H	32	29	SAN	1BH - 1.6TO- 1.5	F*1
H	27	30	MAI	1BH - 1.6TO- 1.2	F*1
H	32	30	MAI	TRH - 0.1TO+ 0.0	F*1
H	32	30	MAN	1BH - 1.5TO- 1.4	F*1
H	35	30	SAI	TRH - 0.1TO+ 0.0	F*1
H	35	30	SAN	1BH - 1.4TO- 1.4	F*1
H	3	31	MAI	1BH - 1.7TO- 1.3	F*1
H	20	32	MAN	1BH - 1.5TO- 1.4	F*1
H	31	32	SAN	1BH - 1.6TO- 1.5	F*1
H	25	33	SAI	TRH - 0.1TO- 0.1	F*1
H	25	33	SAN	1BH - 1.5TO- 1.5	F*1
H	28	34	MAI	1BH - 1.6TO- 1.5	F*1
H	13	35	MAN	1BH - 1.2TO- 0.9	F*1
H	28	35	MAN	1BH - 1.6TO- 1.4	F*1
H	20	36	MAI	TRH + 0.1TO+ 0.2	F*1
H	20	36	MAN	1BH - 1.5TO- 1.4	F*1
H	23	36	MAN	1BH - 1.3TO- 1.2	F*1
H	27	36	SAI	TRH - 0.0TO+ 0.0	F*1
H	27	36	SAN	1BH - 1.5TO- 1.4	F*1
H	20	37	SAI	TRH + 0.1TO+ 0.2	F*1
H	20	37	SAN	1BH - 1.5TO- 1.4	F*1
H	23	37	SAI	TRH + 0.0TO+ 0.1	F*1
H	23	37	SAN	1BH - 1.5TO- 1.4	F*1
H	14	38	MAI	1BH - 1.6TO- 1.4	F*1
H	19	38	MAN	1BH - 1.7TO- 1.5	F*1
H	20	38	MAN	1BH - 1.4TO- 1.3	F*1
H	37	38	SAI	TRH + 0.0TO+ 0.2	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	37	38	SAN	1BH - 1.4TO- 1.3	F*1
H	14	41	SAN	1BH - 1.5TO- 1.2	F*1
H	19	41	SAI	TRH + 0.1TO+ 0.2	F*1
H	19	41	SAN	1BH - 1.5TO- 1.5	F*1
H	21	41	SAI	TRH + 0.0TO+ 0.2	F*1
H	21	41	SAN	RTR - 0.3TO- 0.2	F*1
H	21	41	SAN	RTR - 0.3TO- 0.2	F*1
H	21	41	SAN	1BH - 1.6TO- 1.5	F*1
H	27	41	SAN	1BH - 1.4TO- 1.3	F*1
H	1	42	SAI	TRH + 0.2TO+ 0.3	F*1
H	1	42	INR	1BH - 1.7	F*1
H	12	42	MAN	1BH - 1.4TO- 1.3	F*1
H	20	42	MAI	1BH - 1.7TO- 1.2	F*1
H	22	42	SAI	TRH + 0.1TO+ 0.2	F*1
H	22	42	SAN	1BH - 1.5TO- 1.4	F*1
H	24	42	SAI	TRH - 0.0TO+ 0.1	F*1
H	24	42	SAN	1BH - 1.7TO- 1.7	F*1
H	33	42	MAI	1BH - 1.6TO- 1.5	F*1
H	33	43	MAI	1BH - 1.5TO- 1.4	F*1
H	37	43	MAN	1BH - 1.2TO- 1.1	F*1
H	13	44	MAN	1BH - 1.1TO- 1.0	F*1
H	14	44	SAI	TRH + 0.1TO+ 0.2	F*1
H	14	44	SAN	RTR - 0.3TO- 0.3	F*1
H	14	44	SAN	RTR - 0.3TO- 0.3	F*1
H	14	44	SAN	1BH - 1.7TO- 1.6	F*1
H	17	44	SAN	1BH - 1.5TO- 1.4	F*1
H	27	44	SAI	TRH - 0.1TO+ 0.0	F*1
H	27	44	SAN	RTR - 0.4TO- 0.4	F*1
H	27	44	SAN	RTR - 0.4TO- 0.3	F*1
H	27	44	SAN	1BH - 1.6TO- 1.5	F*1
H	13	45	SAI	1BH - 1.5TO- 1.4	F*1
H	15	45	MAI	TRH + 0.2TO+ 0.3	F*1
H	15	45	MAN	1BH - 1.5TO- 1.4	F*1
H	28	45	MAI	TRH + 0.0TO+ 0.1	F*1
H	28	45	MAN	1BH - 1.6TO- 1.5	F*1
H	17	46	MAI	TRH + 0.1TO+ 0.3	F*1
H	17	46	MAN	RTR - 0.3TO- 0.2	F*1
H	17	46	MAN	RTR - 0.3TO- 0.2	F*1
H	17	46	MAN	1BH - 1.6TO- 1.5	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	26	46	MAI	1BH - 1.5TO- 1.4	F*1
H	12	47	SAI	TRH + 0.1TO+ 0.2	F*1
H	12	47	SAN	1BH - 1.5TO- 1.4	F*1
H	2	48	MAN	1BH - 1.2TO- 1.1	F*1
H	22	48	SAI	TRH + 0.2TO+ 0.2	F*1
H	22	48	SAN	1BH - 1.5TO- 1.5	F*1
H	23	48	MAN	1BH - 1.4TO- 1.2	F*1
H	28	48	MAN	1BH - 1.8TO- 1.6	F*1
H	29	48	SAI	TRH - 0.1TO+ 0.0	F*1
H	29	48	SAN	1BH - 1.6TO- 1.5	F*1
H	1	49	SAN	1BH - 3.6TO- 3.6	F*1
H	1	49	SAN	1BH - 1.3TO- 1.2	F*1
H	3	49	MAI	1BH - 1.3TO- 1.1	F*1
H	11	49	MAI	TRH - 0.1TO+ 0.1	F*1
H	11	49	MAN	1BH - 1.4TO- 1.3	F*1
H	12	49	MAI	1BH - 1.4TO- 1.2	F*1
H	13	49	SAI	TRH + 0.1TO+ 0.3	F*1
H	13	49	SAN	1BH - 1.6TO- 1.5	F*1
H	14	49	MAI	1BH - 1.5TO- 1.0	F*1
H	18	49	MAN	1BH - 1.4TO- 1.2	F*1
H	23	49	MAI	1BH - 1.6TO- 1.2	F*1
H	28	49	SAN	1BH - 1.8TO- 1.7	F*1
H	32	49	MAN	1BH - 1.7TO- 1.5	F*1
H	41	49	SAN	1BH - 1.2TO- 1.1	F*1
H	9	50	MAN	1BH - 1.2TO- 1.2	F*1
H	23	50	MAI	TRH - 0.1TO+ 0.0	F*1
H	23	50	MAN	RTR - 0.4TO- 0.3	F*1
H	23	50	MAN	RTR - 0.4TO- 0.3	F*1
H	23	50	MAN	1BH - 1.6TO- 1.5	F*1
H	24	50	MAN	1BH - 1.7TO- 1.6	F*1
H	25	50	SAI	TRH - 0.0TO+ 0.0	F*1
H	25	50	SAN	1BH - 2.4TO- 2.3	F*1
H	29	50	SAI	TRH - 0.1TO- 0.0	F*1
H	29	50	SAN	1BH - 1.6TO- 1.5	F*1
H	32	50	MAI	1BH - 1.5TO- 1.1	F*1
H	33	50	SAN	1BH - 1.7TO- 1.5	F*1
H	34	50	SAI	TRH - 0.1TO+ 0.0	F*1
H	34	50	SAN	RTR - 0.4TO- 0.4	F*1
H	34	50	SAN	RTR - 0.4TO- 0.3	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	34	50	SAN	1BH - 1.6TO- 1.6	F*1
H	18	51	MAI	TRH + 0.1TO+ 0.1	F*1
H	18	51	MAN	1BH - 1.4TO- 1.3	F*1
H	28	51	SAI	TRH - 0.0TO+ 0.0	F*1
H	28	51	SAN	1BH - 1.5TO- 1.5	F*1
H	32	51	SAN	1BH - 1.4TO- 1.2	F*1
H	3	52	SAI	TRH - 0.0TO+ 0.0	F*1
H	3	52	SAN	1BH - 1.4TO- 1.3	F*1
H	28	52	SAN	1BH - 1.6TO- 1.4	F*1
H	33	52	SAN	1BH - 1.2TO- 0.9	F*1
H	13	53	MAN	1BH - 1.4TO- 0.9	F*1
H	1	54	MAI	1BH - 3.6TO- 3.6	F*1
H	1	54	MAI	1BH - 1.3TO- 1.0	F*1
H	16	54	MAI	TRH + 0.1TO+ 0.2	F*1
H	16	54	MAN	1BH - 1.3TO- 1.2	F*1
H	18	54	MAI	TRH + 0.1TO+ 0.2	F*1
H	18	54	MAN	1BH - 1.4TO- 1.4	F*1
H	23	54	SAN	1BH - 1.6TO- 1.5	F*1
H	24	54	SAI	TRH - 0.1TO+ 0.0	F*1
H	24	54	SAN	RTR - 0.4TO- 0.4	F*1
H	24	54	SAN	RTR - 0.4TO- 0.3	F*1
H	24	54	SAN	1BH - 1.6TO- 1.5	F*1
H	10	55	MAI	1BH - 1.3TO- 1.3	F*1
H	13	55	MAN	1BH - 1.5TO- 0.8	F*1
H	22	55	SAN	1BH - 1.5TO- 1.4	F*1
H	28	55	VOL	TRH - 1.0TO- 0.8	F*1
H	28	55	VON	1BH - 2.4TO- 2.2	F*1
H	33	55	SAN	1BH - 1.5TO- 1.4	F*1
H	4	56	MAI	1BH - 1.3TO- 1.2	F*1
H	27	56	SAI	TRH - 0.0TO+ 0.1	F*1
H	27	56	SAN	RTR - 0.4TO- 0.3	F*1
H	27	56	SAN	RTR - 0.5TO- 0.4	F*1
H	27	56	SAN	1BH - 1.7TO- 1.6	F*1
H	28	56	SAI	TRH - 0.0TO+ 0.1	F*1
H	28	56	SAN	RTR - 0.5TO- 0.4	F*1
H	28	56	SAN	RTR - 0.4TO- 0.4	F*1
H	28	56	SAN	1BH - 1.6TO- 1.5	F*1
H	7	57	SAN	1BH - 1.2TO- 1.1	F*1
H	13	57	MAI	TRH + 0.1TO+ 0.2	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	13	57	MAN	1BH - 1.4TO- 1.3	F*1
H	21	57	MAN	1BH - 1.2TO- 1.1	F*1
H	13	58	MAN	1BH - 1.2TO- 1.1	F*1
H	18	58	MAI	TRH + 0.2TO+ 0.3	F*1
H	18	58	MAN	1BH - 1.3TO- 1.2	F*1
H	23	58	SAN	1BH - 1.5TO- 1.5	F*1
H	37	58	SAN	1BH - 1.5TO- 1.4	F*1
H	5	59	SAI	TRH + 0.0TO+ 0.1	F*1
H	5	59	SAN	1BH - 1.4TO- 1.4	F*1
H	15	59	MAI	TRH + 0.2TO+ 0.3	F*1
H	15	59	MAN	1BH - 1.4TO- 1.3	F*1
H	28	59	MAN	1BH - 1.6TO- 1.5	F*1
H	30	59	MAI	1BH - 1.6TO- 1.5	F*1
H	32	60	SAN	1BH - 1.5TO- 1.4	F*1
H	37	60	SAI	TRH - 0.0TO+ 0.1	F*1
H	37	60	SAN	1BH - 1.5TO- 1.5	F*1
H	7	61	MAI	TRH + 0.0TO+ 0.1	F*1
H	7	61	MAN	1BH - 1.3TO- 1.2	F*1
H	7	61	SAN	TRH - 2.5TO- 2.4	F*1
H	22	61	MAN	1BH - 1.6TO- 1.5	F*1
H	23	61	SAN	1BH - 1.5TO- 1.4	F*1
H	27	61	MAI	TRH - 0.1TO+ 0.1	F*1
H	27	61	MAN	1BH - 1.5TO- 1.4	F*1
H	5	62	MAI	TRH + 0.0TO+ 0.1	F*1
H	5	62	MAN	1BH - 1.6TO- 1.6	F*1
H	19	62	MAN	1BH - 1.3TO- 1.2	F*1
H	23	62	MAI	TRH - 0.1TO+ 0.0	F*1
H	23	62	MAN	1BH - 1.6TO- 1.5	F*1
H	25	62	SAI	TRH - 0.0TO+ 0.1	F*1
H	25	62	SAN	1BH - 1.5TO- 1.4	F*1
H	34	62	SAI	TRH - 0.0TO+ 0.0	F*1
H	34	62	SAN	1BH - 1.5TO- 1.4	F*1
H	37	62	MAI	1BH - 3.6TO- 3.5	F*1
H	37	62	SAN	1BH - 1.5TO- 1.4	F*1
H	37	63	SAN	1BH - 1.5TO- 1.4	F*1
H	7	64	SAN	TRH - 1.4TO- 1.3	F*1
H	7	64	SAN	1BH - 3.8TO- 3.7	F*1
H	9	64	SAN	1BH - 1.2TO- 1.1	F*1
H	32	64	MAI	TRH - 0.1TO+ 0.1	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	32	64	MAN	1BH - 1.5TO- 1.5	F*1
H	34	64	MAI	1BH - 3.8TO- 3.7	F*1
H	34	64	MAI	1BH - 1.6TO- 1.5	F*1
H	10	65	MAN	1BH - 1.3TO- 1.2	F*1
H	12	65	MAN	1BH - 1.3TO- 1.2	F*1
H	15	65	MAN	1BH - 1.3TO- 1.2	F*1
H	24	65	MAN	1BH - 1.6TO- 1.5	F*1
H	27	65	SAN	1BH - 1.5TO- 1.4	F*1
H	11	66	MAN	1BH - 1.4TO- 1.3	F*1
H	12	66	MAI	TRH + 0.2TO+ 0.3	F*1
H	12	66	MAN	RTR - 0.4TO- 0.3	F*1
H	12	66	MAN	RTR - 0.4TO- 0.3	F*1
H	12	66	MAN	1BH - 1.5TO- 1.4	F*1
H	24	66	SAN	1BH - 1.6TO- 1.6	F*1
H	7	67	SAI	TRH - 0.0TO+ 0.0	F*1
H	7	67	SAN	1BH - 1.3TO- 1.3	F*1
H	9	67	MAN	1BH - 1.2TO- 1.1	F*1
H	16	67	SAN	1BH - 1.2TO- 1.1	F*1
H	24	67	MAN	1BH - 1.7TO- 1.5	F*1
H	27	67	MAN	1BH - 1.7TO- 1.6	F*1
H	34	67	SAI	TRH + 0.0TO+ 0.1	F*1
H	34	67	MAN	1BH - 3.7TO- 3.6	F*1
H	34	67	SAN	1BH - 1.5TO- 1.4	F*1
H	24	68	MAN	1BH - 1.6TO- 1.5	F*1
H	27	68	SAN	1BH - 1.5TO- 1.4	F*1
H	37	68	MAI	1BH - 3.7TO- 3.6	F*1
H	37	68	MAN	1BH - 1.5TO- 1.4	F*1
H	24	69	MAN	1BH - 1.5TO- 1.4	F*1
H	25	69	MAN	1BH - 1.5TO- 1.4	F*1
H	27	70	SAN	1BH - 1.6TO- 1.6	F*1
H	18	71	SAI	TRH + 0.1TO+ 0.2	F*1
H	18	71	SAN	1BH - 1.3TO- 1.2	F*1
H	20	71	MAI	TRH - 2.7TO- 2.6	F*1
H	20	71	SAI	TRH + 0.1TO+ 0.2	F*1
H	20	71	MAN	1BH - 3.9TO- 3.8	F*1
H	20	71	SAN	1BH - 1.3TO- 1.3	F*1
H	12	72	MAN	1BH - 1.5TO- 1.3	F*1
H	13	72	SAI	TRH + 0.0TO+ 0.1	F*1
H	13	72	MAN	1BH - 1.4TO- 1.3	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	13	72	SAN	RTR - 0.1TO- 0.1	F*1
H	13	72	SAN	RTR - 0.1TO- 0.1	F*1
H	12	73	MAN	1BH - 1.2TO- 1.1	F*1
H	15	73	MAN	1BH - 1.4TO- 1.2	F*1
H	17	73	MAI	TRH + 0.1TO+ 0.2	F*1
H	17	73	MAN	1BH - 1.3TO- 1.3	F*1
H	18	73	SAI	TRH + 0.2TO+ 0.3	F*1
H	18	73	SAN	1BH - 1.3TO- 1.2	F*1
H	19	73	MAI	TRH + 0.1TO+ 0.2	F*1
H	19	73	MAN	1BH - 1.3TO- 1.2	F*1
H	25	73	SAI	TRH - 0.0TO+ 0.1	F*1
H	25	73	SAN	1BH - 1.5TO- 1.5	F*1
H	15	74	MAI	TRH + 0.1TO+ 0.2	F*1
H	15	74	MAN	1BH - 1.4TO- 1.3	F*1
H	17	74	SAI	TRH + 0.0TO+ 0.1	F*1
H	17	74	INR	1BH - 1.3	F*1
H	24	74	SAI	TRH + 0.0TO+ 0.1	F*1
H	24	74	SAN	RTR - 0.4TO- 0.3	F*1
H	24	74	SAN	RTR - 0.5TO- 0.4	F*1
H	24	74	SAN	1BH - 1.5TO- 1.5	F*1
H	13	75	SAN	1BH - 1.3TO- 1.2	F*1
H	14	75	MAI	TRH + 0.1TO+ 0.2	F*1
H	14	75	MAN	1BH - 1.3TO- 1.3	F*1
H	15	75	MAI	TRH + 0.1TO+ 0.2	F*1
H	15	75	MAN	1BH - 1.3TO- 1.3	F*1
H	11	76	SAN	1BH - 1.5TO- 1.3	F*1
H	13	76	SAN	1BH - 1.5TO- 1.4	F*1
H	22	76	MAN	1BH - 1.9TO- 1.8	F*1
H	26	76	MAI	TRH - 0.0TO+ 0.0	F*1
H	26	76	MAN	1BH - 1.5TO- 1.4	F*1
H	12	77	MAI	TRH - 0.0TO+ 0.0	F*1
H	12	77	MAN	RTR - 0.2TO- 0.2	F*1
H	12	77	MAN	RTR - 0.2TO- 0.2	F*1
H	12	77	MAN	1BH - 1.5TO- 1.4	F*1
H	13	77	SAN	1BH - 1.5TO- 1.4	F*1
H	22	77	SAN	1BH - 1.5TO- 1.2	F*1
H	22	78	SAI	TRH - 0.0TO- 0.0	F*1
H	22	78	SAN	1BH - 1.5TO- 1.5	F*1
H	26	78	MAN	1BH - 1.4TO- 1.3	F*1

22 STEAM GENERATOR F*1 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	12	79	MAN	1BH - 1.2TO- 1.0	F*1
H	13	79	MAN	1BH - 1.2TO- 1.1	F*1
H	14	79	MAN	1BH - 1.2TO- 1.1	F*1
H	15	79	MAI	TRH + 0.1TO+ 0.2	F*1
H	15	79	MAN	1BH - 1.3TO- 1.3	F*1
H	26	79	SAI	TRH - 0.0TO+ 0.1	F*1
H	26	79	SAN	1BH - 1.5TO- 1.5	F*1
H	9	80	MAN	1BH - 1.2TO- 1.1	F*1
H	13	80	MAN	1BH - 1.2TO- 1.1	F*1
H	22	81	SAN	1BH - 1.5TO- 1.4	F*1

Grand Count 321

NOTE: SOME TUBES ARE COUNTED MORE THAN ONCE

1BH	=	BOTTOM OF ADDITIONAL HARD ROLL 1
F*1	=	F* TUBE WITH ONE ADDITIONAL ROLL EXPANSION
INR	=	INDICATION NOT REPORTABLE
MAI	=	MULTIPLE AXIAL INDICATION
MAN	=	MULTIPLE AXIAL INDICATION WITH NO CHANGE
SAI	=	SINGLE AXIAL INDICATION
SAN	=	SINGLE AXIAL INDICATION WITH NO CHANGE
TRH	=	TOP OF ROLL HOT LEG
VOL	=	VOLUMETRIC INDICATION
VON	=	VOLUMETRIC INDICATION WITH NO CHANGE
NO CHANGE	=	INCREASE IN LENGTH < 0.1 INCH OR MOVE IN AXIAL DIRECTION <0.1 INCH

22 STEAM GENERATOR F*2 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	21	22	SAI	TRH + 0.0TO+ 0.1	F*2
H	21	22	INR	2BH - 3.5	F*2
H	21	22	INR	1BH - 1.4	F*2
H	17	28	MAI	TRH + 0.0TO+ 0.2	F*2
H	17	28	SAI	RTR + 0.8TO+ 1.0	F*2
H	17	28	SAI	1BH - 0.4TO+ 0.1	F*2
H	17	28	MAN	RTR - 0.3TO- 0.3	F*2
H	17	28	MAN	RTR - 0.4TO- 0.3	F*2
H	17	28	MAN	2BH - 3.2TO- 3.1	F*2
H	17	28	MAN	1BH - 1.7TO- 1.5	F*2
H	17	28	SAN	2BH - 2.1TO- 1.9	F*2
H	15	31	SAI	2BH - 0.4TO- 0.3	F*2
H	15	31	MAN	1BH - 1.5TO- 1.4	F*2
H	15	31	MAN	2BH - 3.6TO- 3.5	F*2
H	14	35	SAN	1BH - 1.2TO- 1.1	F*2
H	14	35	SAN	2BH - 3.2TO- 3.1	F*2
H	19	35	SAI	TRH + 0.1TO+ 0.2	F*2
H	19	35	SAN	2BH - 3.2TO- 3.2	F*2
H	19	35	SAN	1BH - 1.5TO- 1.4	F*2
H	37	35	SAI	TRH - 0.1TO- 0.0	F*2
H	37	35	SAI	1BH + 1.0TO+ 1.1	F*2
H	37	35	SAN	2BH - 0.9TO- 0.8	F*2
H	37	35	SAN	2BH - 3.5TO- 3.4	F*2
H	1	44	MAI	TRH + 0.2TO+ 0.3	F*2
H	1	44	MAI	TRH - 2.7TO- 2.6	F*2
H	1	44	MAN	1BH - 1.6TO- 1.5	F*2
H	1	44	MAN	2BH - 3.3TO- 3.2	F*2
H	1	44	MAN	2BH - 5.7TO- 5.6	F*2
H	1	44	MAN	1BH - 4.2TO- 4.0	F*2
H	17	45	MAI	1BH - 1.6TO- 1.1	F*2
H	17	45	MAN	2BH - 3.3TO- 2.8	F*2
H	27	48	SAI	TRH - 0.1TO+ 0.0	F*2
H	27	48	SAN	2[illegible] - 3.2TO- 3.2	F*2
H	27	48	SAN	1BH - 1.5TO- 1.5	F*2
H	26	50	MAI	TRH - 0.1TO+ 0.1	F*2
H	26	50	MAN	2BH - 3.2TO- 3.1	F*2
H	26	50	MAN	1BH - 1.6TO- 1.5	F*2
H	24	52	MAN	1BH - 2.5TO- 2.4	F*2

22 STEAM GENERATOR F*2 TUBES, February 26, 1997

LEG	ROW	COL	INDICATION	LOCATION & EXTENT	REMARK
H	24	52	MAN	2BH - 3.3TO- 3.0	F*2
H	12	53	SAN	1BH - 1.4TO- 1.3	F*2
H	12	53	SAN	2BH - 3.0TO- 2.9	F*2
H	12	53	VOL	1BH - 2.5TO- 2.2	F*2
H	12	53	VON	2BH - 4.0TO- 3.7	F*2
H	37	56	SAI	RTR + 1.5TO+ 3.1	F*2
H	37	56	SAI	TRH - 0.0TO+ 0.1	F*2
H	37	56	SAI	TRH - 2.3TO- 2.2	F*2
H	37	56	SAN	RTR - 0.4TO- 0.4	F*2
H	37	56	SAN	RTR - 0.4TO- 0.4	F*2
H	37	56	SAN	2BH - 3.2TO- 3.2	F*2
H	37	56	SAN	1BH - 1.5TO- 1.4	F*2
H	37	56	INF	RTR + 1.5TO+ 3.1	F*2
H	9	60	SAI	TRH + 0.0TO+ 0.1	F*2
H	9	60	SAI	1BH + 0.3TO+ 0.4	F*2
H	9	60	SAN	1BH - 1.3TO- 1.3	F*2
H	9	60	SAN	2BH - 1.6TO- 1.4	F*2
H	9	60	INR	2BH - 2.8	F*2
H	16	65	MAI	TRH + 0.1TO+ 0.2	F*2
H	16	65	MAN	2BH - 3.1TO- 3.0	F*2
H	16	65	MAN	1BH - 1.4TO- 1.3	F*2
H	19	74	MAI	TRH + 0.1TO+ 0.2	F*2
H	19	74	SAI	1BH - 0.5TO- 0.0	F*2
H	19	74	MAN	2BH - 2.8TO- 2.7	F*2
H	19	74	MAN	1BH - 1.3TO- 1.2	F*2
H	19	74	SAN	2BH - 2.2TO- 1.6	F*2

Grand Count 64

NOTE: SOME TUBES ARE COUNTED MORE THAN ONCE

1BH	=	BOTTOM OF ADDITIONAL HARD ROLL 1
2BH	=	BOTTOM OF ADDITIONAL HARD ROLL 2
F*2	=	F* TUBE WITH TWO ADDITIONAL ROLL EXPANSIONS
INR	=	INDICATION NOT REPORTABLE
MAI	=	MULTIPLE AXIAL INDICATION

MAN	=	MULTIPLE AXIAL INDICATION WITH NO CHANGE
SAI	=	SINGLE AXIAL INDICATION
SAN	=	SINGLE AXIAL INDICATION WITH NO CHANGE
TRH	=	TOP OF ROLL HOT LEG
VOL	=	VOLUMETRIC INDICATION
VON	=	VOLUMETRIC INDICATION WITH NO CHANGE
NO CHANGE	=	INCREASE IN LENGTH < 0.1 INCH OR MOVE IN AXIAL DIRECTION <0.1 INCH

ATTACHMENT 4

Prairie Island Unit 2 In Situ Test List - January 1997 Refueling Outage

Prairie Island Unit 2 In Situ Test List - January 1997 Refueling Outage

Reason	GEN	ROW	COL	VOLTS	ET CALL	MSLB, In Situ Result	LOCATION of ET CALL	LGTH	WDTH	PRO
F* RTZ	21	7	27	2.7	SAI	0	1BH + 1.1TO+ 1.2	0.1		
Large Volt	21	23	32	61.4	MAI	0	1BH - 1.5TO- 0.7	0.8		
Large Volt	21	14	55	62.7	SAI	0	1BH - 1.5TO- 0.7	0.8		
LEAK	21	18	44	31.5	MAN	.024 to .027 gph	1BH - 1.4TO- 1.1	0.3		5.3
LEAK	22	16	38	6.6	MAI	.05 to .11 gph	1BH - 1.7TO- 1.2	0.5		15.6
ODSCC	21	19	14	1.8	VOL	0	TRH + 7.2TO+ 8.0	0.19	0.34	
ODSCC	21	7	35	0.1	SAI	0	1BH + 16.5TO+ 16.9	0.4		
ODSCC	22	16	38	2.2	SAI	0	1BH + 16.6TO+ 17.2	0.6		
ODSCC	22	18	65	0.3	VOL	0	TRH + 7.8TO+ 8.6	0.37	0.42	
ODSCC	22	18	65	0.4	VOL	0	TRH + 1.0TO+ 2.5	1.36	0.38	
Pit Flaw	21	40	24	0.8	VOL	0	TSC + 3.8TO+ 4.2	0.34	0.35	
Pit Like	21	27	24	0.6	VOL	0	TSC - 0.1TO+ 0.1	0.31	0.35	
PVN	22	19	13	16.7	PVN	0	TRH + 11.6TO+ 17.1	5.5		
RTZ	21	9	15	5.4	MAI	0	TRH + 0.1TO+ 0.3	0.2		
RTZ	22	2	20	5.0	MAI	0	TRH - 0.1TO+ 0.0	0.1		
RTZ	22	16	21	5.2	MAI	0	TRH + 0.0TO+ 0.2	0.2		
RTZ	22	22	22	4.8	SAI	0	TRH + 0.0TO+ 0.1	0.1		
RTZ	22	37	40	2.3	VOL	0	TRH - 0.3TO+ 0.0	0.32	0.30	
RTZ	22	12	83	3.3	MAI	0	TRH - 0.1TO+ 0.1	0.2		
Seep	21	3	43	30.5	MAN	0	1BH - 1.6TO- 1.2	0.4		4.9
Seep	21	1	20	26.3	MAI	0	1BH - 1.5TO- 0.8	0.7		4.3
Seep	21	5	20	27.2	MAI	0	1BH - 1.5TO- 0.9	0.6		3.8
Seep	21	18	21	16.8	MAN	0	1BH - 1.3TO- 0.9	0.4		3.1
Seep	21	7	35	15.0	MAI	0	1BH - 1.4TO- 1.0	0.4		3
Seep	21	10	41	13.5	MAI	0	1BH - 1.6TO- 1.0	0.6		3.3
Seep	21	9	41	33.2	MAI	0	1BH - 1.5TO- 0.9	0.6		2.3
Seep	21	11	61	17.9	MAI	0	1BH - 1.4TO- 1.1	0.3		4.4
Seep	21	11	68	23.7	MAN	0	1BH - 1.3TO- 1.0	0.3		4.9
Seep	22	13	46	38.8	MAI	0	1BH - 1.8TO- 0.9	0.9		8.1
TTS	21	29	29	0.6	VOL	0	TSH + 0.0TO+ 0.3	0.32	0.39	
TTS	21	18	32	0.2	SAI	0	TSH + 2.1TO+ 2.6	0.5		
TTS	21	32	34	0.3	VOL	0	TSH - 0.1TO+ 0.1	0.29	0.62	
TTS	22	31	24	0.4	VOL	0	TSH + 0.0TO+ 0.1	0.33	0.39	
TTS	22	32	28	0.5	VOL	0	TSH - 0.1TO+ 0.2	0.17	0.31	
TTS	22	37	47	0.3	VOL	0	TSH + 3.9TO+ 4.1	0.30	0.36	
TTS	22	29	64	1.1	VOL	0	TSH + 0.1TO+ 0.4	0.46	0.38	
TTS	22	30	64	0.6	VOL	0	TSH + 0.1TO+ 0.3	0.33	0.38	
U-bend	21	1	24	12.8	MAI	0	07H + 10.6TO+ 11.1	0.5		

Large Volt are largest PWSCC indication at a RTZ with an F* Reroll
LEAK are PWSCC at RTZ
Seep are PWSCC at RTZ
TTS are located at top of tubesheet and are probably ODSCC
MAN are Multiple Axial Indications which did not change from post reroll exam in 1995
"1BH" tested for at least 20 min with 0.6 ml/stroke pump
PRO is the bobbin coil profilometry measurement of the OEM hard roll minus the minimum diameter of the rero
"1BH" location is the bottom of the hard roll in the first additional roll expansion