FORM NIS-1 OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS
As required by the Provisions of the ASME Code Rules

1. Owner Union Electric Co., P.O. Box 149, St. Louis, MO 63166
(Name and Address of Owner)

2. Plant Callaway Plant, P.O. Box 620, Fulton, MO 65251
(Name and Address of Plant)

3. Plant Unit 1 4. Owner Certificate of Authorization (if required) N/A

5. Commercial Service Date 12/19/84 6. National Board Number for Unit NA

7. Components Inspected

Components or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reference the Callaway Refuel 6 Inservice Inspection Summary Report, the Owner's N-3 Report, the Installer's N-5 Report, and the N-5 Addenda 6 for the systems listed on sheet 2 of 2.				

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8 ½ in. x 11 in., (2) information in items 1 through 6 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

FORM NIS-1 (back)

8. Examination Dates 5-18-92 to 11-22-93 9. Inspection Interval from 12-19-84 to 12-18-94

10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current interval.

Reference the Callaway Refuel 6 Inservice Inspection Final Results.

11. Abstract of Conditions Noted.

Reference the Callaway Refuel 6 Inservice Inspection Final Results.

12. Abstract of Corrective Measures Recommended and Taken.

Reference the Callaway Refuel 6 Inservice Inspection Final Results.

We certify that the statements made in this report are correct and the examinations and corrective measures taken conform to the rules of the ASME Code, Section XI.

Date February 11, 1994 Signed Union Electric Co. By James M. Gloc
Owner

Certificate of Authorization No. (if applicable) N/A Expiration Date N/A

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel inspectors and/or the State of Province of Missouri and employed by H.S.B.I. & I. Co. of Hartford, CT have inspected the components described in the Owners' Data Report during the period of 5-18-92 to 11-22-93 and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in the Owners' Data Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the inspector nor this employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in the Owners' Data Report. Furthermore, neither the Inspector nor this employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with the inspections.

Date February 11, 1994

C.E. Housdan Commissions NB 8489A, MO 230
Carroll E. Housdan National Board, State, Province and No.

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7. Components Inspected

SYSTEM NAME	SYSTEM DESIGNATOR	N-5 SERIAL NO.
Main Steam	AB	0177-AB-F
Main Feedwater	AE	0179-AE-F
Auxiliary Feedwater	AL	0207-AL-F
Reactor Coolant	BB	0276-BB-F
Chemical and Volume Control	BG	0306-BG-F
Reactor Makeup Water	BL	0096-BL-F
Steam Generator Blowdown	BM	0221-BM-F
Borated Refueling Water Storage	BN	0144-BN-F
Fuel Pool Cooling and Cleanup	EC	0128-EC-F
Essential Service Water	EF	0285-EF-F
Component Cooling Water	EG	0256-EG-F
Residual Heat Removal	EJ	0229-EJ-F
High Pressure Coolant Injection	EM	0181-EM-F
Containment Spray	EN	0202-EN-F
Accumulator Safety Injection	EP	0203-EP-F
Auxiliary Feedwater Turbine	FC	0137-FC-F
Misc. Building HVAC	GF	0077-GF-F

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5. Commercial Service Date 12/19/84 6. National Board Number for Unit NA

7. Components Inspected

SYSTEM NAME	SYSTEM DESIGNATOR	N-5 SERIAL NO.
Fuel Building HVAC	GG	0078-GG-F
Control Building HVAC	GK	0080-GK-F
Auxiliary Building HVAC	GL	0103-GL-F
Containment Cooling	GN	0141-GN-F
Containment Hydrogen Control	GS	0131-GS-F
Liquid Radwaste	HB	0188-HB-F
Emergency Fuel Oil	JE	0129-JE-F
Compressed Air	KA	0151-KA-F
Containment Breathing Air	KB	0123-KB-F
Fire Protection	KC	0047-KC-F
Standby Diesel Generator (Piping)	KJ	0114-KJ-F
Floor and Equipment Drains	LF	0083-LF-F
Nuclear Sampling	SJ	0135-SJ-F

CALLAWAY REFUEL 6
INSERVICE INSPECTION
ABSTRACT

INTRODUCTION

Inservice Inspections (ISI) on ASME Class 1, 2, and 3 components and piping were performed prior to and during Refuel 6 at the Callaway Nuclear Plant. More specifically, this abstract covers ISI performed from May 18, 1992, through November 30, 1993. Refuel 6 is the second refueling outage in the third forty-month period of the first ten-year interval. The following topics are addressed in this abstract report:

- Organizations responsible for ISI work during Refuel 6.
- Inspection agency responsible for ISI at the Callaway Plant.
- Codes, Regulatory Guides, and NUREGs applicable to the Callaway ISI Program Plan.
- Final reports contained in the Callaway Refuel 6 Inservice Inspection Summary Report.

ORGANIZATIONS RESPONSIBLE FOR ISI

The Union Electric organizations and outside vendors involved with ISI examinations during Refuel 6 are listed below.

- NUCLEAR ENERGY SERVICES (NES): NES was responsible for development of the balance of plant (BOP) Callaway ISI Program Plan. In addition, NES was responsible for procedure development, procedure qualification, and perfo mance of manual non-destructive examinations (NDE).

- BABCOCK AND WILCOX NUCLEAR TECHNOLOGIES (BWNT): BWNT was responsible for procedure development, procedure qualification, and performance of automated and manual ultrasonic examinations on nine Reactor Coolant System centrifugally cast stainless steel (CCSS) pipe welds.

- CONAM NUCLEAR SERVICES: CONAM Nuclear Services was responsible for procedure development, procedure qualification, and performance of eddy current examinations on Steam Generators 'A' and 'D'.

- UNION ELECTRIC QUALITY CONTROL (UEQC): UEQC was responsible for identification of components to be visually examined during Refuel 6, procedure development, procedure qualification, and performance of visual examinations (e.g., VT-1, VT-2, VT-3, and VT-4) identified in the Callaway ISI Program Plan. UEQC was also responsible for review of all visual examination data and results.

- UNION ELECTRIC SYSTEMS ENGINEERING: Union Electric Systems Engineering was responsible for identification of welds and components to be examined by NES and BWNT, identification of steam generator tubes to be examined by CONAM, review of all vendor NDE procedures, field supervision of all vendor ISI activities, review of all NDE final data and results, development and supervision of the ASME Section XI Ten-Year Hydrostatic Test Program, and for development and supervision of the ASME Section XI Repair/Replacement Program.

- UNION ELECTRIC DESIGN CONTROL: Union Electric Design Control was responsible for disposition and final resolution of pipe and equipment supports not meeting the UEQC visual examination acceptance criteria.

INSPECTION AGENCY

The inspection agency responsible for ISI duties as outlined in ASME Section XI was Hartford Steam Boiler Inspection and Insurance Company (H. S. B. I. & I. Co.).

CODES, REGULATORY GUIDES, AND NUREGS

ASME Section XI, 1980 Edition, Winter 1981 Addenda was the governing code for performance and selection of ISI examinations completed during Refuel 6. This code edition and addenda also governed the performance of augmented examinations required by the Callaway Final Safety Analysis Report. As specified in 10 CFR 50.55a, the 1974 Edition, Summer 1975 Addenda was used for component and weld selection for ASME Class 2 systems.

Specific regulations and/or NUREGs identified in the Callaway ISI Program Plan are listed below.

- NRC Standard Review Plan, Sections 3.6.1 and 6.6 (NUREG-0800-1981)
- NRC Regulatory Guide 1.14
- NRC Regulatory Guide 1.26
- NRC Regulatory Guide 1.83
- NRC Regulatory Guide 1.147

CALLAWAY REFUEL 6 ISI SUMMARY REPORT

The Callaway Refuel 6 ISI Summary Report is a compilation of a number of individual reports. These reports are listed below.

- Nondestructive Examinations Performed by NES
- Visual Examinations Performed by Union Electric Quality Control
- Automated Ultrasonic Examinations on Reactor Coolant System Loop Welds
- Eddy Current Examinations on Steam Generators 'A' and 'D'
- Repair, Replacement, and Modification Index (N-5 Addenda 6)

Each report or summary listed above identifies components and/or welds examined, date(s) of examination, and the results of the examination. In addition, each report presents the procedures, equipment and consumable material used, personnel certifications, and equipment calibration records, where applicable.

The "Owner's Data Report for Inservice Inspections" (Form NIS-1) presents the Section XI required information by referencing existing documents. These reference documents are the Callaway Refuel 6 Inservice Inspection Summary Report, the Owner's N-3 Report, and the Installer's N-5 Report. Each of these documents is retained as a permanent record at the Callaway Nuclear Plant.

CALLAWAY REFUEL 6
INSERVICE INSPECTION
FINAL RESULTS

INTRODUCTION

This document summarizes Inservice Inspections (ISI) performed at the Callaway Nuclear Plant during Refuel 6. In addition, general conditions noted during conduct of ISI and necessary corrective measures taken are summarized. For clarity, the ISI work has been subdivided into the following categories:

- Nondestructive examinations (NDE) performed on Reactor Coolant and balance of plant systems by Babcock and Wilcox Nuclear Technologies (BWNT) and Nuclear Energy Services (NES).
- Visual examinations (e.g., VT-1, VT-2, VT-3, and VT-4) on piping, components, and supports performed by Union Electric Quality Control.
- Steam generator eddy current examinations performed by CONAM Nuclear Services.
- ASME Section XI repairs, replacements, and modifications performed by Union Electric.

NDE PERFORMED ON REACTOR COOLANT AND BALANCE OF PLANT SYSTEMS

A total of 87 ultrasonic (UT), 49 liquid penetrant (PT), and 13 magnetic particle (MT) examinations were performed on 123 Class 1 and 2 safety-related welds and components during Refuel 6. No rejectable indications were detected. A brief overview of the examinations performed and conditions noted is presented below.

REACTOR COOLANT:

Reactor Coolant System loop piping was examined with the Babcock and Wilcox Nuclear Technologies (BWNT) advanced automated ultrasonic system, ACCUSONEX®. This advanced data acquisition and analysis system was used since the loop piping is fabricated of centrifugally cast stainless steel (CCSS). This material is inherently difficult to examine ultrasonically due to its very large grain size. ACCUSONEX®, combined with enhanced manual ultrasonic techniques, were used to ensure the best possible examination.

A total of 4 loop 'A' welds, 2 loop 'B' welds, and 1 loop 'D' weld were examined using ACCUSONEX®. The loop 'A' safety injection nozzle-to-cold leg weld and loop 'C' residual heat removal recirculation nozzle-to-hot leg weld were examined by enhanced manual ultrasonic methods. In addition, liquid penetrant examinations were performed on 10 Reactor Coolant System loop welds. No rejectable indications were detected.

REACTOR COOLANT PUMPS:

The ten-year inservice inspection required by NRC Regulatory Guide 1.147 was completed on the Reactor Coolant Pump 'C' motor flywheel during the motor refurbishment in Cheswick, Pennsylvania. The ten-year inspection consisted of a magnetic particle examination of 100% of the flywheel surface area and ultrasonic examination of 100% of the flywheel volume. These examinations were performed by Nuclear Energy Services (NES) in accordance with Wolf Creek nondestructive examination procedures. Union Electric Nuclear Engineering (UENE) and the Callaway site Authorized Nuclear Inservice Inspector (ANII) performed an in-depth review of the examination data, equipment certifications, personnel certifications, consumable material certifications, and procedures used to perform the flywheel examinations. No rejectable indications were detected by NES.

Reactor Coolant Pump 'A' main pump case bolts were examined by the ultrasonic method via the bolt heater hole. All 24 bolts were successfully examined with no rejectable indications detected.

PRESSURIZER:

Pressurizer surge nozzle-to-bottom head weld and surge nozzle inner radius surface areas were examined by the ultrasonic method. In addition, the lower surface area of the support skirt weld were examined by the magnetic particle method. No rejectable indications were detected.

STEAM GENERATOR D:

Steam Generator 'D' primary inlet nozzle inner radius surface area, primary outlet nozzle inner radius surface area, and the bottom head-to-tube sheet weld were examined by the ultrasonic method. In addition, all 24 support pad bolts were examined by the ultrasonic method. No rejectable indications were detected.

RESIDUAL HEAT REMOVAL:

The Residual Heat Removal (RHR) train 'A' and RHR to Safety Injection piping were examined by ultrasonic and liquid penetrant methods. A total of 1 ultrasonic and 23 liquid penetrant examinations were performed. No rejectable indications were detected.

CONTAINMENT SPRAY:

Containment Spray train 'B' pump discharge piping was examined by ultrasonic and liquid penetrant methods. A total of 5 ultrasonic and 5 liquid penetrant examinations were performed. No rejectable indications were detected.

ACCUMULATOR SAFETY INJECTION, HIGH PRESSURE COOLANT INJECTION, AND CHEMICAL VOLUME AND CONTROL:

Accumulator Safety Injection (ASI) loop 3 piping, High Pressure Coolant Injection (HPCI) pump discharge to Reactor Coolant System (RCS) piping, and Chemical and Volume Control System (CVCS) normal letdown piping were examined using ultrasonic and liquid penetrant methods. A total of 3 ultrasonic and 2 liquid penetrant examinations were performed on these systems. No rejectable indications were detected.

MAIN STEAM, MAIN FEEDWATER, AND STEAM GENERATOR BLOWDOWN:

Main Steam loops 1 and 3 piping, Main Feedwater loops 1 and 4 piping (not including preservice inspection of the new stainless steel venturi welds), Auxiliary Feedwater Turbine pump steam supply piping, and Steam Generator 'B' blowdown piping were examined by ultrasonic, liquid penetrant, and magnetic particle methods. A total of 23 ultrasonic, 2 liquid penetrant, and 3 magnetic particle examinations were performed on these systems. No rejectable indications were detected.

Thermal fatigue cracking has been recently discovered at Diablo Canyon Unit 1 and at Sequoyah Units 1 and 2 in feedwater to steam generator pipe welds. These inservice failures were identified in NRC Information Notice 93-20, "Thermal Fatigue Cracking of Feedwater Piping to Steam Generators," dated March 24, 1993. In response to these recent inservice failures, the Steam Generator 'B' feedwater nozzle-to-pipe weld was examined by the ultrasonic method during Refuel 6. This was an out-of-scope examination not identified in the Callaway ISI Program Plan. No evidence of thermal fatigue cracking or any other service related indication was detected.

FEEDWATER VENTURI MODIFICATION (CMP 92-1033) PRESERVICE INSPECTIONS (PSI):

New stainless steel feedwater venturis were installed in the Main Feedwater system during Refuel 6. The 1989 Edition of ASME Section XI requires all Class 2 dissimilar metal welds be examined by both volumetric (ultrasonic) and surface (magnetic particle or liquid penetrant) examination methods. The current ISI Program Plan requires only an ultrasonic examination per the rules of NUREG 0800. The second ten-year ISI program plan rules will be based on the 1989 Edition of ASME Section XI. In anticipation of these new 1989 Code rules, a baseline (PSI) ultrasonic examination and a liquid penetrant examination were performed on the 8 new venturi-to-feedwater pipe dissimilar metal welds. In addition, a baseline ultrasonic examination was performed on the 8 hand hole-to-venturi welds as currently required by NUREG 0800. No rejectable indications were detected.

CONTAINMENT COOLER PIPING MODIFICATION (CMP 91-1004) PRESERVICE INSPECTIONS (PSI):

Containment Cooler return and supply containment isolation valves were replaced with new style valves during Refuel 6 to mitigate seat leakage and to better ensure containment integrity. A total of 20 Class 2 welds were made to install these new valves. The 1989 Edition of ASME Section XI requires that 7.5% of the total population of Class 2 welds (i.e., newly installed plus original construction welds) in containment heat removal systems be examined by both volumetric (ultrasonic) and surface (magnetic particle or liquid penetrant) examination methods. Containment Cooler return and supply lines are currently exempted by Callaway's first ten-year ISI Program Plan. The second ten-year ISI Program Plan rules will be based on the 1989 Edition of ASME Section XI. In anticipation of these new 1989 rules, a baseline (PSI) ultrasonic examination and a magnetic particle examination were performed on 9 of the new Containment Cooler Train 'A' and Train 'B' supply or return line pipe welds. The PSI on these 9 welds satisfies the 7.5% examination population for the second ten-year interval. No rejectable indications were detected.

VISUAL EXAMINATIONS ON PIPING, COMPONENTS, AND SUPPORTS

SYSTEM LEAKAGE, INSERVICE, AND FUNCTIONAL PRESSURE TESTS:

A system leakage pressure test was completed on 100% of all Class 1 piping and components during Refuel 6. The visual examination for leakage (VT-2) was performed with the system(s) at normal operating temperature and pressure. No pressure boundary leakage was identified.

Approximately 98% of the required Period 3 (e.g., third forty-month period in the first ten-year interval) system inservice or functional pressure tests on Class 2 and 3 piping and components were complete at the conclusion of Refuel 6. No rejectable pressure boundary leakage was identified as a result of the visual examinations for leakage during these pressure tests. Minor "non-pressure boundary" leakage was documented, and subsequently either evaluated to be acceptable or corrected.

TEN-YEAR ISI HYDROSTATIC PRESSURE TESTS:

A pneumatic pressure test was completed on the 'B' Diesel Generator Starting Air System during Refuel 6. No rejectable pressure boundary leakage was identified during this pneumatic test. Minor "non-pressure boundary" leakage at threaded connections was documented, and subsequently either evaluated to be acceptable or corrected.

Callaway intends to invoke the new rules as approved by the NRC in Code Case N-498 (reference Regulatory Guide 1.147, Revision 10). These new rules allow a VT-2 examination for leakage during an inservice or functional test in lieu of the ten-year ISI hydrostatic test for ASME Class 1 and 2

systems. Based on this, no ten-year ISI hydrostatic tests were performed on Class 1 or 2 systems during Refuel 6.

Listed below are the Class 3 systems requiring a hydrostatic pressure test by the end of Callaway's first ten-year interval. Also listed is the system identification and the percentage complete.

SYSTEM DESCRIPTION	SYSTEM ID	PERCENTAGE COMPLETE
Fuel Pool Cooling and Cleanup	EC	100%
Essential Service Water	EF	100%
Component Cooling Water	EG	95%
Auxiliary Feedwater Turbine	FC	100%
Misc. Building HVAC	GF	100%
Fuel Handling Building HVAC	GG	100%
Control Building HVAC	GK	100%
Auxiliary Building HVAC	GL	100%
Containment Cooling	GN	100%
Compressed Air	KA	100%
Standby Diesel Engine	KJ	35%
Floor and Equipment Drains	LF	100%

Approximately 13 hydrostatic pressure tests remain to be completed on ASME Class 3 systems. The Component Cooling Water (CCW) side of the 'A' RHR Heat Exchanger, CCW side of the Letdown Heat Exchanger, and CCW side of the Seal Water Heat Exchanger have not yet been hydrostatically tested. In addition, the fuel oil, jacket water cooling, and lube oil auxiliary systems for Diesel Generator 'A' and 'B' remain to be hydrostatically tested. Callaway intends to invoke the alternative rules delineated in the pending Code Case N-498-1. This Code Case would allow an inservice leak test in lieu of the hydrostatic pressure test for ASME Class 3 systems.

PIPE SUPPORTS AND COMPONENT SUPPORTS:

The selection of piping and component supports for visual examination (VT-3 and/or VT-4) is in accordance with the Statistical Sampling Plan delineated in the Callaway ISI Program Plan. Listed below is a breakdown of 62 supports scheduled for visual examination in the third forty-month period and completed during Refuel 6. No rejectable conditions were identified.

SYSTEM DESCRIPTION	SYSTEM ID	NUMBER OF EXAMS
Main Feedwater	AE	5
Auxiliary Feedwater	AL	2
Reactor Coolant	BB	2
Chemical and Volume Control	BG	9
Reactor Makeup Water	BL	1
Steam Generator Blowdown	BM	2
Essential Service Water	EF	6
Component Cooling Water	EG	16
Residual Heat Removal	EJ	4
High Pressure Coolant Injection	EM	4
Containment Spray	EN	1
Accumulator Safety Injection	EP	2
Auxiliary Feedwater Turbine	FC	1
Containment Cooling	GN	4

Emergency Fuel Oil	JE	1
Standby Diesel Generator	KJ	2

In addition to the visual examinations listed above, a total of 12 supports on the Accumulator Safety Injection system and 1 support on the High Pressure Coolant Injection system were visually examined during Refuel 6 due to previous unsatisfactory conditions discovered during Refuel 4. All supports were found to be satisfactory with one exception. A strut assembly pipe clamp stud was found loose on a support for the Accumulator Safety Injection system. The supports immediately upstream and downstream were visually examined and found to be satisfactory. The loose stud was evaluated in accordance with the Callaway ISI Program Plan and categorized as an "unexplained failure" since there is no record of a transient event (e.g., water hammer) and because the location of the subject support is such that other work activities in the area would not have caused the loose stud. Based on this and on the Callaway ISI Program Plan, this support will be visually examined again during the next forty-month inspection period.

EQUIPMENT SUPPORTS:

A total of 8 visual examinations (VT-3's) were performed on equipment supports during Refuel 6. Listed in the table below are the equipment supports visually examined, a brief description of the support, and the number of examinations on each support. No rejectable conditions were found.

EQUIPMENT	SUPPORT DESCRIPTION	NUMBER OF EXAMS
Diesel Generator 'A' Lube Oil Cooler	Fore and aft support saddles	2
Diesel Generator 'A' Main Lube Duplex Oil Strainers	Pedestal supports	2
Component Cooling Water Pump 'A'	Pedestal support	1
Residual Heat Removal Pump 'A'	Lateral strut supports	2
Boron Injection Tank	I-beam support leg at 300° mark	1

INTEGRAL ATTACHMENTS:

A total of 16 visual examinations (VT-3's) were performed on pressure boundary integral attachments during Refuel 6. The integral attachments for the system and/or equipment visually examined are listed below. No rejectable conditions were identified.

EQUIPMENT/SYSTEM	DESCRIPTION	NUMBER OF EXAMS
Auxiliary Feedwater	Pipe lugs	3
Diesel Generator 'A' Lube Oil Cooler	Fore and aft support saddle integral attachments	2
Diesel Generator 'A' Main Lube Duplex Oil Strainers	Pedestal support integral attachments	2
Component Cooling Water	Pipe lugs	7
Essential Service Water	Pipe lugs	2

VALVE BODY INTERNAL SURFACES AND BOLTING:

The internal surface area of the Pressurizer 'B' safety relief valve was visually examined (VT-3) during Refuel 6. No internal degradation, corrosion, or indication of failure was detected. In addition, a visual examination (VT-1) was completed on 10 valve or flange bolted connections in the

Accumulator Safety Injection, High Pressure Coolant Injection, Chemical and Volume Control, Residual Heat Removal, or Reactor Coolant System. No rejectable conditions were identified.

STEAM GENERATOR EDDY CURRENT EXAMINATIONS

Steam generator eddy current examinations were performed in accordance with Callaway Technical Specification 4.4.5. One hundred percent of the unplugged tubes in Steam Generators 'A' and 'D' were examined full length using a standard bobbin coil probe. A total of 482 tubes in Steam Generator 'A' and 126 tubes in Steam Generator 'D' were examined with the rotating pancake coil (RPC) in the hot leg expansion region for signs of Primary Water Stress Corrosion Cracking (PWSCC). Additional RPC examinations were performed on 31 Steam Generator 'D' tubes and 37 Steam Generator 'A' tubes to further disposition bobbin coil indications.

The primary damage mechanism identified by eddy current examinations was Anti-Vibration Bar (AVB) wear. No evidence of PWSCC was detected. A total of 199 tubes with AVB indications were found, of which 104 had at least one indication greater than or equal to 20% throughwall.

The rotating pancake coil data for 3 tubes in Steam Generator 'A' showed signals as high as 70% throughwall. Subsequent low frequency bobbin coil examinations on these tubes showed a foreign object lodged outside the tubes. In order to determine the extent of damage, 64 additional tubes in this region were examined with a rotating pancake coil. A total of 5 tubes were plugged due to possible wall thinning from foreign objects lodged outside the tubes. A Foreign Object Search and Retrieval (FOSAR) was performed to locate and remove the foreign object. The foreign object was later determined to be weld slag.

A total of 19 tubes in Steam Generator 'A' and 18 tubes in Steam Generator 'D' were plugged. Seven of the tubes plugged had indications greater than the Technical Specification limit of 48% throughwall. The remaining 30 tubes were plugged since they were considered a risk to continued operation over the next 3 years.

REPAIRS, REPLACEMENTS, AND MODIFICATIONS

Approximately 421 ASME Section XI repairs, replacements, or modifications were completed on ASME Class 1, 2, or 3 components, parts, and appurtenances during the time period beginning with Refuel 5 breaker closure (May 18, 1992) and ending with Refuel 6 breaker closure (November 22, 1993).

Every repair, replacement, or modification completed in accordance with ASME Code requirements at Callaway has been reported on Callaway's Form NIS-2 Report, to document the extent of work performed and to provide traceability of new parts and/or materials. The Form NIS-2 is not required by the governing code, however, this method of reporting is employed to ensure code compliance.

CONCLUSION

Approximately 158 nondestructive examinations, 97 visual examinations, and 102 pressure tests were completed on ASME Class 1, 2, and 3 components or welds during Refuel 6 (this total does not include eddy current examinations on steam generator tubes). As a result of these ASME Section XI examinations and tests performed and of the conditions observed, there is no general safety concern for the pressure retaining integrity of the safety-related systems at the Callaway Nuclear Plant.