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December 23, 1982

Mr. H. R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. NUCLEAR REGULATORY COMMISSION
Washington, D.C. 20555

Attention: Mr. R. A. Clark, Chief
Operating Reactors Branch 3

Gentlemen:

DOCKET NO. 50-266
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
POINT BEACH NUCLEAR PLANT UNIT 1

This is in response to your request for additional information regarding Point Beach Nuclear Plant Unit 1 steam generator repairs transmitted by Mr. R. A. Clark's letter of November 16, 1982. Our responses to these requests are attached.

In addition to the attached responses, we reviewed a request by telephone from Mr. Colburn of your staff for the approximate number of personnel who could be expected to receive radiation exposure during the steam generator repair and related activities. This is to confirm our estimate at that time of approximately 900 personnel who could receive radiation exposure during activities associated with steam generator repair.

Should you have further questions, please contact me.

Very truly yours,

C. W. Fay

C. W. Fay

Assistant Vice President

Attachment

cc: ASLB Service List
NRC Resident Inspector

A001

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
WISCONSIN ELECTRIC POWER COMPANY	)	Docket Nos. 50-266
	)	50-301
(Point Beach Nuclear Plant, Units 1 and 2)	)	(OL Amendment)
	)	

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LICENSEE'S RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION RELATED TO POINT BEACH NUCLEAR PLANT UNIT 1 STEAM GENERATOR REPAIR

QUESTION 1

Describe stress relief heat treatment procedures of welded joints to ensure compliance with ASME Code requirements. Also indicate how the stresses would be minimized on cladded components during cutting, welding and stress relief heat treatment.

RESPONSE

Concerning stress relief heat treatment for field installation, Westinghouse will comply with the requirements of the ASME Code Section III, Class I, NB-4620, 1977 Edition through the Summer 79 Addenda as applicable for each type of weld. Stress relief heat treatment industry practice, typical of that used at the Turkey Point and Surry plants during steam generator repairs, will be used for the Point Beach Unit 1 steam generator repair. Special work packages for these activities will be used during the steam generator repair.

With regard to welding of cladded components, it should be noted that the Point Beach steam generator repair methodology does not involve any field welded joints between cladded components. The steam generator channel head cladding is applied at the manufacturing facility. Safe ends are installed on the inlet and outlet reactor coolant nozzles at the manufacturing facility to facilitate field welding of the nozzles to the stainless steel pipe fittings without the need for stress relief heat treatment. Therefore, there will be no welding, cutting, or stress relief heat treatment effects of cladded components.

QUESTION 2

Describe the details of the tests and evaluations which will be conducted after the steam generator repair to assure the integrity of the reactor coolant system and compliance with applicable codes and regulations.

RESPONSE

As described in Section 3.2.6.7 of the Repair Report, hydrostatic tests and baseline inspections of piping or components will be performed in accordance with Section XI of the ASME Code for piping or components affected by the steam generator repair. These hydrostatic tests and inspections will assure the integrity of the reactor coolant system. In addition to the hydrostatic tests following repair, the replacement steam generators will be hydrostatically tested on the primary side at the manufacturing facility. A baseline eddy current inspection of 100 percent of the steam generator tubes will be conducted following completion of the repairs.

Detailed procedures have not been developed for these hydrostatic tests and inspections at the present time.

QUESTION 3

Describe the preoperational testing program which will be conducted to provide the necessary assurance that the steam generator and other affected components can be operated in accordance with design requirements and in a manner that will not endanger the health and safety of the public.

RESPONSE

As described in the Repair Report, the repair of steam generators in Unit 1 will have minimal impact on existing equipment and structures except for the steam generators and associated piping and instrumentation in containment. Therefore preoperational testing requirements will be similar to those for a normal refueling outage.

Upon completion of the steam generator repair, piping systems will be hydrostatically tested in accordance with applicable codes. Instrumentation and electrical equipment which was removed or relocated during the steam generator repair will be reinstalled and tested using normal maintenance procedures and Technical Specification requirements, as necessary. Other systems and components will be tested in accordance with Technical Specification requirements for testing prior to return to power from a normal refueling.

Testing of the repaired steam generators and other affected systems or components will include the following:

1. Steam generator thermal performance tests to verify the thermal performance parameters specified for the repaired steam generators.
2. Steam generator moisture carryover tests to verify that moisture carryover in the steam is within design values.
3. Calorimetric tests to verify adequate reactor coolant flow in accordance with Technical Specifications.
4. Inspection of equipment supports affected by repair activities in both hot and cold conditions.

These tests and inspections are not significantly different from tests and inspections performed following normal refueling or maintenance and provide adequate assurance that operation of the repaired steam generators will not affect the health and safety of the public.

QUESTION 4

As referenced in Section 3.2.6.2 of the Steam Generator Repair Report, describe the areas/components that will be decontaminated and subsequently placed back in service. Describe the decontamination process including the decontamination fluid. Describe the tests that have been performed to show that decontamination fluids are benign and will not cause future corrosion.

RESPONSE

Decontamination, as generally referenced in Section 3.2.6.2, consists of removal of radioactive contamination, to the extent practical, from work areas of the containment frequented by personnel during the steam generator repair. The decontamination of these areas will be accomplished using techniques the same as, or similar to, those in use during normal plant operation and maintenance. Such techniques include flushing of surfaces with water, mopping, wiping with absorbent cloth or covering of floor surfaces. As stated in Section 3.2.6.4, local areas of containment will be decontaminated to minimize personnel exposure to radioactive contamination. As noted in Section 3.3.5.3, local areas of the reactor coolant piping and steam generator surfaces may be decontaminated if necessary and local work areas will be decontaminated periodically. These activities do not result in introduction of decontamination materials to systems or components affected by the steam generator repair.

As stated in Table 5-1, Item 3.(4) of the Repair Report, and our November 22, 1982 response to NRC Staff requests for additional information, no chemical decontamination of components is planned for the repair process. Thus, chemical decontamination fluids will not be introduced to systems or components affected by the repair. Reactor coolant pipe ends will be wiped with lint free rags dampened with demineralized water to reduce surface contamination. While details of weld preparation procedures have not been finalized, additional decontamination may be performed using decontamination methods with abrasive material such as boric acid grit in a water slurry if determined to be required based upon ALARA evaluation. Such decontamination would not introduce materials deleterious to the reactor coolant system.

QUESTION 5

As referenced in Section 3.2.6.4 of the repair report relating to post-shutdown activities, describe the water chemistry and/or metal surface conditions to be established and maintained in parts of primary and secondary systems not being refurbished or replaced.

RESPONSE

Layup procedures for primary and secondary systems during steam generator repair are presently being developed. It is expected that wet layup using borated, demineralized water will be used for primary systems with hydrazine addition and/or nitrogen blanketing, as appropriate, to prevent intrusion of oxygen. Layup of secondary systems such as the feedwater system and condenser, is expected to be dry. These systems will be drained and dried with air in accordance with normal practice.

Detailed layup procedures have not been developed presently.

QUESTION 6

Verify the adequacy of the spent fuel pool water cooling and clean-up systems to handle the off-loading of the full core.

RESPONSE

The Point Beach Nuclear Plant Final Safety Analysis Report (FSAR) contains a description of the spent fuel pool cooling and purification systems and design bases for the cooling system. As described in Section 9.3.1 of the FSAR, the design basis for the spent fuel pool cooling system assumes a full core unload for inservice inspection or maintenance of reactor coolant system components with spent fuel assemblies stored in all other spent fuel rack storage locations. Thus, the spent fuel pool cooling system is adequate to accommodate the core unload required for repair of the Unit 1 steam generators.

The core unload required for steam generator repair would not be expected to result in radioactivity concentrations significantly different from those resulting from storage of spent fuel, refueling operations or unloading of the core for routine inservice inspection. Experience during past core unloads and normal refuelings at Point Beach has indicated that the spent fuel pool purification system is adequate to maintain spent fuel pool radioactivity concentrations at acceptably low levels. Thus, the spent fuel pool purification system is adequate for the core unload required for steam generator repair.

QUESTION 7

As described in Section 3.2.6.7 of the repair report relating to post-installation activities, provide a commitment to inspect, after hydrotest, the interior of the steam generator to assure metal-clean surfaces in accordance with Regulatory Guide 1.37.

RESPONSE

Cleaning criteria during fabrication and preparation for shipment of the steam generators are specified in WCAP-8370, Rev. 9A which includes criteria for both the primary and secondary sides of the steam generators. The steam generators are sealed and protected against moisture during shipment and are maintained dry during installation. Thus, there is assurance that the steam generator surfaces will not be exposed to wet, oxygenated environments during installation and that primary and secondary surfaces are acceptably clean. Reopening the steam generator for an inspection following hydrostatic testing would expose surfaces to a wet, oxygenated environment which could result in formation of iron oxides on carbon steel steam generator surfaces in the secondary side. As a consequence, the "metal clean" criterion implied by ANSI N45.2.1-1973 paragraph 3.1.2(1) (as referenced in Regulatory Guide 1.37) probably could not be met on the secondary side of the steam generators following hydrostatic testing and cannot be met following a period of operation since the carbon steel surfaces would be covered

with the normal film of magnetite and other iron oxides. Since primary surfaces are either Inconel or Stainless Steel and are verified clean following hydrotest at the manufacturing facility, there is no basis for requiring an inspection following hydrotesting in the plant.

QUESTION 8

Section 3.4.2 of the repair report relates to on-site storage of components. Provide the details of the lower assembly sealing prior to storage. Address the thickness of the seal plates and welds and the preparation of the interior of the assembly, i.e., drying, gas cover, etc.

RESPONSE

The removal procedures require that the steam generator lower assembly be sealed prior to movement out of the containment. Sealing will be accomplished by welding closure plates (covers) over the top of the lower assembly at the girth cut location and over the inlet and outlet reactor coolant nozzles and all other vessel penetrations. The sealing is accomplished to assure containment of the radioactivity within the lower assembly and to minimize the potential for radiation streaming from these penetrations. Thickness of the covers for the top of the lower assembly and nozzles will be such that structural integrity is assured and that radiation levels are reduced to acceptable levels. Estimated thickness of the covers is approximately three (3) inches of steel or its shielding equivalent. The steam generator lower assembly primary and secondary sides will be drained. Essentially all the radioactivity is contained in the primary side of the steam generators which will be dry during the steam generator repair and storage. Thus, there is no need for further drying or gas blanketing of the steam generators.