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NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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September 15, 1983
Docket No. 50-336
B10844

Director of Nuclear Reactor Regulation
Attn: Mr. James R. Miller, Chief
Operating Reactors Branch #3
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: (1) E. J. Mroczka letter to T. E. Murley, dated July 1, 1983.

Gentlemen:

Millstone Nucler Power Station, Unit No. 2
Thermal Shield Damage Recovery Program

By Reference (1), Northeast Nuclear Energy Company (NNECO) reported damage to the thermal shield at Millstone Unit No. 2. Representatives of NNECO met with the NRC Staff on July 21, 1983 to discuss the reactor vessel internals inspection results and to outline the preliminary plans for return to power operation.

Since the July meeting, NNECO has made considerable progress in defining the scope and methods to be utilized in the removal of the thermal shield from the core barrel and ultimate disposition of this component. It is the purpose of this letter to document the current plans and schedules for this effort and to elaborate, where appropriate, on the various action items discussed at the July meeting.

Thermal Shield Removal and Disposal

NNECO is currently making preparations to begin the shield removal processes at Millstone Unit No. 2. A mechanical cutting process will be utilized to effect the removal of the thermal shield from the core barrel. It is planned that three vertical cuts will be made, together with the support lug removal, to separate the shield from the core barrel in three, 120° segments. These segments will next be positioned on a cutting platform located within the refueling cavity where additional vertical cuts will be made to the 120° segments.

The smaller pieces of the thermal shield (a total of six) will then be loaded into two casks for removal from the containment. The casks will be removed from the containment via the equipment hatch and transported onsite to the railway access in the auxiliary building or another suitable storage location.

The casks will then, separately, be placed into the cask washdown pit on the 38'6" elevation of the auxiliary building and unloaded. Production cutting will be performed within the cask washdown pit to reduce the thermal shield to strips which can be accommodated in currently licensed offsite transport casks. Ultimate offsite disposal is planned.

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Core Barrel Inspections

NNECO currently plans to perform eddy current and ultrasonic testing of the region around each support lug position. The results of these inspections will dictate what, if any additional inspections and corrective measures are required for continued service with the core barrel.

Loose Parts Retrieval

As of this writing, NNECO has vacuumed the material identified on the lower core support plate. Following this evolution, the reactor vessel internals will be removed and placed on the core barrel support stand in the refueling cavity. The remaining loose parts in the reactor vessel are scheduled to be removed following thermal shield cutting and transport to the auxiliary building.

Analytical Efforts

NNECO is proceeding with the necessary analytical efforts to support continued plant operation without the thermal shield. Transient and accident analyses are being reviewed to determine what, if any, impact shield removal will have on the currently docketed analyses.

Evaluations of reactor coolant flow rate, core uplift forces and core bypass flow will be completed for startup.

The effects of thermal shield removal on the reactor vessel with respect to neutron and gamma radiation fluence is ongoing. The impact of fluence changes on the pressurized thermal shock evaluations and reactor vessel stress (due to gamma heating) will be assessed prior to startup.

Preparations are currently ongoing to demonstrate the acceptability of continued operation with the core barrel. This effort is contingent upon the results of the core barrel inservice inspection.

Schedule

The following schedular information is provided to the Staff:

- Core barrel support stand installed in refueling cavity — Aug. 29
- Core barrel removed from vessel and placed on support stand. — Sept. 6

o	Thermal shield cutting begins	Sept. 16
o	Cask loading in containment	Contingent upon thermal shield removal success.
o	Cask transport to auxiliary building	
o	Production cutting in cask washdown pit begins	
o	Core barrel ISI begins	

It is stressed that this schedule is a best estimate and does not account for less than expected equipment performance or unanticipated problems which may occur.

NNECO will provide the Staff with information and conclusions in the following areas prior to startup from the current outage.

- o Core Support Barrel inspection results.
- o Core Support Barrel integrity evaluation.
- o Evaluation of the effects of thermal shield removal on the reactor vessel with respect to increased radiation fluence.
- o Evaluations of the impacts of thermal shield removal on docketed safety analyses including core hydraulics.

It is NNECO's intention to meet with the Staff at such time when the core barrel inspection results are available. At that time, a review of all ongoing efforts will be presented. This has been discussed with and agreed to by the Millstone Unit No. 2 Project Manager and will result in optimal use of both our manpower resources. Continued communications between my staff and the Project Manager will ensure timely dissemination of any developments in the recovery effort.

We trust you find this information satisfactory.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil
Senior Vice President