Nuclear Information and Resource Service

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Alexander W. Dromerick, Project Manager
Mail Stop 14 C7
Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

RE: Safety Evaluation of the Core Shroud Fix at Oyster Creek Nuclear Generating Station

Dear Mr. Dromerick:

As you are aware, Nuclear Information and Resource Service (NIRS) and Oyster Creek Nuclear Watch (OCNW) filed a petition under 10 CFR 2.206 with the U.S. Nuclear Regulatory Commission (NRC) on September 19, 1994 regarding General Public Utility Nuclear's (GPUN) Oyster Creek nuclear generating station. The petition focused attention on the age-related deterioration of a number of reactor internal components composed of a susceptible material, Type 304 stainless steel. The core shroud is one subject of that petition. A partial inspection of the shroud by GPUN discovered extensive cracking at its midsection on the H4 weld. Upon discovery, GPUN suspended all further inspections of the lower welds on the shroud and opted to repair the cracked component.

GPUN's core shroud repair was designed as an alternative to the requirements of ASME Boiler and Pressure Vessel Code pursuant to Title 10 Code of Federal Regulations Part 50.55a(a)(3)(i) where the "proposed alternatives would provide an acceptable level of quality and safety" and was accepted by the NRC. It involved the installation of 10 stainless steel tie rod/radial restraint assemblies anchored at the top and bottom of the shroud.

Specifically, NIRS concerns with the Oyster Creek's Core Shroud Repair focus on the Shroud Restraint Assembly Lower Hook depicted in Figure 4 of the NRC Safety Evaluation dated November 25, 1994. [Attached]

NIRS contends that the lower hooks for the restraint assemblies are dependent on the originally installed gussets, which in turn are composed of plates of Type 304 stainless steel and Inconnel 600. NIRS contends that the anchor system utilized for the core shroud fix is dependent upon a susceptible material which has been subject to long-term exposure by the same harsh operational environment that incubated cracking of the core shroud. These conditions are identified in NUREG/CR-5754 "Boiling Water Reactor Internals Aging Degradation Study."

The summary of NUREG/CR-5754 states, "Aging degradations, if left unmitigated, will eventually cause a failure in an affected component. It is essential to control or eliminate stressors associated with the major aging-related degradation mechanisms. The development of SCC requires three conditions: (1) a susceptible material, (2) a corrosive environment, and (3) the presence of tensile stresses. The elimination of any one of the three conditions will reduce the likelihood of the development of SCC."

NIRS contends that both the NRC and the licensee ignored information contained within NUREG/CR-5754 which warns that it is "essential to control or eliminate stressors" (emphasis added). To the contrary, GPUN incorporated "a susceptible material" in the fabrication of the anchor system for the core shroud fix, namely, Type 304 stainless steel and Inconnel 600 which have been subjected to aging conditions for 25 years during the reactor's operation.

NIRS is very concerned about the inspection timetable for the Shroud Restraint Assemblies. NIRS contends that the growth rate mechanism for Intergranular Stress Corrosion Crack is not fully understood by industry and the NRC. Therefore, a conservative inspection schedule program which would include frequent, comprehensive and enhanced inspections would be called for.

NIRS is aware that by November 15, 1995 NRC is preparing to release a report on proposed inspections to be carried out by the licensee. NIRS requests a response from the NRC regarding the Safety Evaluation and proposed inspections as they pertain to the alleged incorporation of a susceptible material into the Shroud Restraint Assembly.

Specifically, NIRS requests responses to the following questions:

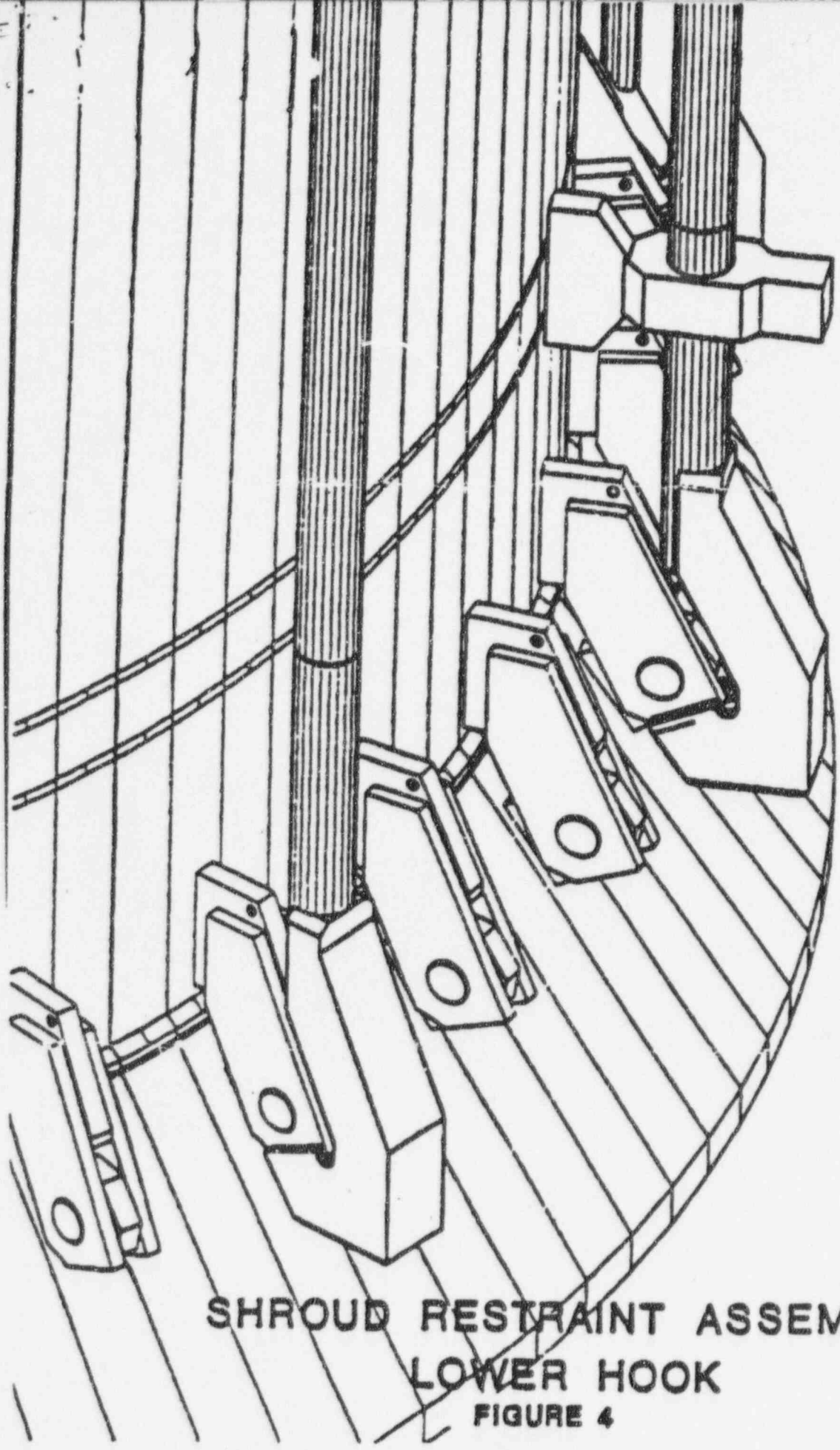
1) Has the NRC staff evaluated or reviewed the licensee's evaluation of the effects of stress corrosion cracking (SCC), fatigue, erosion, embrittlement, and creep on the plate material and its Heat Affected Zones (HAZ) which fabricates the gussets? Is that documentation available for public review?
2) Given that a susceptible material has already been incorporated into the Shroud Restraint Assemblies, what has the licensee done to mitigate the other two conditions necessary to incubate SCC as described in NUREG/CR-5754?
3) Where has NRC or the licensee evaluated the consequences of the failure of one or more Type 304 stainless steel gussets used to anchor the Shroud Restraint Assemblies?
4) Does the NRC plan to require frequent enhanced inspections of the tie rod anchor plates in question? If so, what does the NRC consider to constitute frequent and enhanced inspections for age related deterioration? If not, why not?

I would like to thank you in advance for your cooperation.

Sincerely,

Paul Gunter, Director
Reactor Watchdog Project

attachment
cc/
Senator Bill Bradley
Kent Tosch, NJDEP
William deCamp, Jr., OCNW



SHROUD RESTRAINT ASSEMBLY
LOWER HOOK
FIGURE 4