- [illegible] no further degradation
- w/o further degrad can operate until end of life.
- assurance of no further degradation w/o routine inspections, which are not [illegible]

3-19-86

Note to: J. Lombardo

From: J.R. Gray 25660

SUBJECT NOTICE OF PROPOSED NSHC FOR AMENDMENT ALLOWING OYSTER CREEK TO OPERATE WITH EXISTING CORE SPRAY SPARGER

OELD has been asked to concur in a proposed notice of a license amendment for Oyster Creek which would allow operation with the existing cracked core spray sparger. The license presently requires replacement of that sparger prior to startup after the current refueling outage. OELD refused to concur in several prior proposed notices on this amendment on the grounds that the bases for the proposed NSHC determination were not adequately provided.

While I believe that the instant proposed notice contains the elements of the required basis for a NSHC determination, the instant notice is not very clear. Rather than send the notice back to you one more time for reworking, I have attempted to rewrite it, using the information provided in the instant notice, to clarify it.

In the process of rewriting the basis for the proposed NSHC determination, it became obvious to me that all the Staff can apparently justify, and provide a NSHC finding for, at this time, is operation for one more fuel cycle. It does not appear that the Staff can say now either that operation beyond the next refueling outage (and accompanying inspection) will be safe or that NRC authorization for such future operation will not involve significant hazards considerations. Rather, the Staff would determine the propriety of, and authorize, operation beyond the next refueling outage only after further inspections and Staff approval of any necessary future repairs. In these circumstances, it is not appropriate now to issue a license amendment that would authorize operation with the existing damaged sparger for an indefinite period of time. I suggest, rather, that the amendment be limited to authorization of operation with the existing sparger only for the next refueling outage. If the licensee has not asked for such a limited amendment, we would need to get licensee's agreement to limit its amendment request in that manner before issuing the proposed notice.

Thus, I suggest that:

(1) the license amendment be limited as indicated above and as stated on the attached "Description of amendment request;"

(2) the "Basis for proposed no significant hazards consideration" for the more limited license amendment be as set forth in the attachment.

With these changes, I would be prepared to concur in a conforming proposed notice.

J.R. Gray

Description of amendment request: The amendment would replace the existing license condition requiring replacement of the existing core spray sparger during the current cycle 10 refueling outage with a license condition authorizing operation with the existing sparger for the upcoming fuel cycle subject to enhanced inspection and reporting requirements.

Basis for proposed no significant hazards consideration determination: License Amendment No. 47, dated May 15, 1980, to License No. DPR-16 for the Oyster Creek Nuclear Generating Station added a license condition which requires the replacement of the existing cracked core spray sparger during the current cycle 10 refueling outage. Operation with a cracked sparger for an interim fuel cycle prior to the current refueling outage was permitted based on repairs to the sparger using repair bracket assemblies. The NRC Staff concluded in the Safety Evaluation supporting Amendment No. 47 that this interim repair of the Oyster Creek sparger does not constitute a significant change in safety margin from that of the original design and that installation of the repair hardware would not increase the probability of an accident.

During the current refueling outage, the licensee has completed full inspection of the accessible surfaces and welds of the sparger and repair assemblies using new inspection techniques and computer photo enhancement and has compared indications of cracks to previous indications. The new inspections and analyses appear to show that:

(1) many previous indications of cracks from prior inspections are, in fact, not cracks;

(2) no further degradation of the sparger has occurred since the prior inspections; and

(3) susceptibility to new cracking (stress corrosion cracking postulated to result from high residual stresses from forcing pipes into position during installation and sensitization from welding, cold work etc.) in new locations is reduced by stress relief from existing cracks.

Moreover, analysis of the seismic, static and thermal loadings for the repair bracket assemblies (which were analyzed, designed and installed in accordance with currently accepted engineering practices) demonstrate the repair bracket assemblies' ability to limit crack openings to an acceptable range should existing cracks propogate around the sparger circumference and inspection data obtained during the current refueling outage indicates that the repair bracket assemblies are capable of maintaining the integrity of the system. In short, subject to NRC Staff confirmation of inspection data and analyses, the circumstances of safe operation with the existing repaired sparger for an additional fuel cycle are the same as at the time when Amendment No. 47, authorizing

operation for the past fuel cycle, was issued. Because, subject to NRC Staff confirmation prior to issuance of the proposed amendment, the magnitude of sparger cracking is not as severe as previously indicated, there has been no additional degradation during the last fuel cycle, and the repair bracket assemblies should maintain the integrity of the existing sparger as it has been maintained during the last fuel cycle, the NRC Staff proposes to determine that issuance of the proposed amendment authorizing operation with the existing repaired sparger for the next fuel cycle does not involve a significant increase in the probability or consequences of accidents previously considered, does not create the possibility of a new or different accident from any evaluated previously, and does not involve a significant reduction in a margin of safety, all relative to previously approved operation. Accordingly, the NRC Staff proposes to determine that this license amendment does not involve significant hazards considerations.

Basis for proposed no significant hazards consideration determination:

License Amendment No. 47, dated May 15, 1980, to License No. DPR-16 for the Oyster Creek Nuclear Generating Station added a license condition which requires the replacement of the core spray spargers during the current cycle 10 refueling outage. In lieu of replacement of the core spray spargers during the current refueling outage the proposed amendment to the license would require full inspection of the accessible surfaces and welds of the core spray spargers and repair assemblies at each refueling outage. Restart would be based on satisfactory results of the inspection subject to Commission approval. This request is based on the results of new inspection techniques including computer photo enhancement. During the current outage the licensee has completed full inspection of the accessible surfaces and welds of the core spargers and repair assemblies including comparisons of all indications of cracks to previous

inspection indications. The licensee believes the inspection shows that no further degradation has taken place and that in many cases indications previously thought to be cracks have been shown not to be. If NRC staff analysis of the inspection results indicates that the condition of the sparger is unacceptable, it would be replaced prior to resuming power operation. The NRC staff concluded in the Safety Evaluation supporting Amendment No. 47 that the proposed interim repair of the Oyster Creek spargers did not represent a significant change in safety margin from that of the original design, nor would the installation of the repair hardware increase the probability of an accident.

The relatively high residual stresses that resulted from forcing the pipe into position during installation together with some sensitization of the material due to welding, cold work, local heating etc,, conceivably caused the cracking observed, which is believed to be stress corrosion cracking. The inspection results suggest that, because the opening of cracks relieves stresses in other locations in the sparger, the susceptibility to stress corrosion cracking in new locations is reduced. We concur with the licensee that crack opening could relieve stresses and therefore reduce the probability or consequences of an accident.

The analysis, design and installation of the repair bracket assemblies are in accordance with currently accepted engineering practices. The analyses of the structural loads imposed by static, seismic and thermal loading demonstrate the bracket assembly's ability to limit the crack opening to within an acceptable range should an existing crack propagate around the pipe circumference. The repair bracket assemblies have been inspected

during the current outage and review of the inspection data indicates that they are capable of maintaining the integrity of the system, and they will not increase the possibility of a new or different kind of an accident.

Thus, if analysis of the inspection data shows that the magnitude of the problem is not as severe as was previously indicated, and that no degradation has occurred since the licensee's initial inspection, there will be no significant hazard involved with continued operation of the as-repaired facility for the next fuel cycle.

Based on the above discussion, the staff proposes to determine that the action does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of a new or different kind of accident from any previously evaluated and does not involve a significant reduction in a margin of safety. Accordingly, the staff proposes to determine that the requested action involves no significant hazards consideration.

Local Public Document Room location: 101 Washington Street, Toms River, New Jersey 08753.

Attorney for licensee: G.F. Trowbridge, Esquire, Shaw, Pittman, Potts and Trowbridge, 1800 M Street, N.W., Washington, D. C. 20036.

NRC Branch Chief: Dennis M. Crutchfield

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

cc: Docket
ORB #5 Reading
J. Lombardo
H. Smith