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 (1) Source Range Monitor (SRM) dry tubes were cracked.
The videotapes of this inspection were submitted to the vendor and our Technical Functions Division for analysis. Based on their recommendations, it was decided that all twelve (12) dry tube assemblies (8 IRMs and 4 SRMs)

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will be replaced prior to reactor startup.

NRC Form 386A (9-83)	LICENSEE EVENT REPORT (LER) TEXT CONTINUATION					
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# DATE OF OCCURRENCE

Considering that these tubes have resided in the reactor core for the past 14 years, no definite time frame for the onset of this occurrence can be determined in the absence of a full metallurgical analysis of the damaged parts. Videotaping of the inspection of all dry tubes was completed on March 26, 1984.

# IDENTIFICATION OF OCCURRENCE

Inspection of the dry tubes showed clear avidence of cracking which could have resulted in a potential breach of the primary coolant pressure boundary (although in this case, all cracks were above the pressure boundary).

This event is considered to be a reportable event as defined in 10 CFR 50.73 a(2)(ii). This event was determined to be reportable on May 10, 1984.

### DESCRIPTION OF OCCURRENCE

A review of the videotapes revealed that seven (7) IRM and one (1) SRM dry tubes were cracked sericusly enough to be considered fractured. There are a total of eight (8) IRM and four (4) SRM tubes in the vessel. The cracks were found in the thin wall tube surrounding the compression spring which facilitates installation, location, and removal of the dry tubes by ensuring engagement of an upper plunger with a pocket in the intersection of top guide plates. This is a non-pressure retaining portion of the dry tube and all cracks were in the vicinity of non-stress relieved welds. The two most severe cracks occurred in the uppermost pressure boundary welds which prevent reactor coolant from intruding into the tube housing the neutron detector. No major indications were observed in the adaptor, the shaft, the guide plug, the primary pressure boundary or any other portion of the tube.

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AD	PARENT CAUSE OF OCCURREN	ICE				

Although the exact cause of this failure cannot be determined at this time, the following factor(s) could have contributed to this occurrence:

1) Flow induced vibration/damage from running the recirculation or shutdown cooling pumps when fuel has been removed from around the dry tubes.

2) Radiation enhanced embrittlement of stainless steel.

3) Stress corrosion cracking of the weld sensitized metal. The welds produced during fabrication of the dry tubes are not in a stress-relieved or solution-annealed condition.

## ANALYSIS OF OCCURRENCE and SAFETY ASSESSMENT

The following analysis is presented:

1) The fractured dry tubes have severely reduced ability to return to straightness if deflected and, therefore pose a risk during fuel handling. This is sufficient reason to remove these units immediately.

2) The clearances around the dry tubes in the loaded core are sufficiently close to preclude large loose parts migration. Small loose parts constitute a minimal risk.

3) Cracks propagating into the pressure boundary would confront compressive stresses that would arrest their growth.

4) Cracking is likely to become more extensive with time.

5) There is a distinct possibility of tube failure during normal operation and consequent channel damage with the potential for fuel clad damage.

6) The dry tubes can continue to function even with a maximum offset of the dry tubes following a 360° through wall crack because the two pieces will be held in functional alignment by support from adjacent fuel channels. Also the support provided by fuel assemblies will prevent adverse safety consequences from loose pieces in the event a dry tube becomes completely severed.

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Oyster Creek, Unit 1

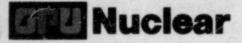
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# SAFETY ASSESSMENT

The cracks found in the SRM/IRM dry tubes did not breach the primary coolant pressure boundary nor did they cause their associated neucron detectors to lose function. With the plant in its current REFUEL mode the safety consequence is minimal. With the reactor at power there is a potential for a tube break at the pressure boundary causing a small break LOCA within the drywell. The detection indications would be an increase in containment temperature, pressure, identified and unidentified leak rates. A manual plant shutdown would commence prior to exceeding the Technical Specification limits for leak rate. If a worse case tube break occurred, the leak would pass approximately 60 gpm which is within makeup capabilities given feedwater or control rod drive pump availability. If manual actions are not taken, an automatic scram would result from high drywell pressure within 30 minutes after break initiation. Utilizing manual or automatic action, or a combination of both, available systems would mitigate the consequences of the postulated small break LOCA within the plant's design basis.

### CORRECTIVE ACTION

The corrective course of action is to replace all twelve (12) dry tubes prior to plant startup. Preparations are presently underway to commence this work.



#### **GPU Nuclear Corporation**

Post Office Box 388 Route 9 South Forked River, New Jersey 08731-0388 609 971-4000 Writer's Direct Dial Number

June 8, 1984

U.S. Nuclear Regulatory Commission Document Control Desk W\_shington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station Docket No. 50-219 Licensee Event Report

This letter forwards one (1) copy of Licensee Event Report (LER) No. 84-008.

Very truly yours,

Var)

Peter B. Fiedler Vice President and Director Oyster Creek

PBF:dam Enclosures

cc: Dr. Thomas E. Murley, Administrator Region I U.S. Nuclear Regulatory Commission 631 Park Avenue King of Prussia, PA 19406

NRC Resident Inspector Oyster Creek Nuclear Generating Station Forked River, NJ 08731

