

UNITED STATES
 ATOMIC ENERGY COMMISSION
 DIRECTORATE OF REGULATORY OPERATIONS
 REGION 1
 631 PARK AVENUE
 KING OF PRUSSIA, PENNSYLVANIA 19406

JUL 18 1974

Jersey Central Power and Light
 Company
 ATTN: Mr. Ivan R. Finfrock, Jr.
 Vice President - Generation
 Madison Avenue at Punch Bowl Road
 Morristown, New Jersey 07960

Docket No. 50-219
 License No. DPR-16

Gentlemen:

This refers to the inspection conducted by Mr. Walton of this office on June 6, 7, 17, 22 and July 11, 1974 of activities authorized by AEC License No. DPR-16 and to the discussions of our findings held by Mr. Walton with Mr. Reeves of your staff at the conclusion of the inspection.

Areas examined during this inspection are described in the Regulatory Operations Inspection Report which is enclosed with this letter. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

Within the scope of this inspection, no violations or safety items were observed.

In accordance with Section 2.790 of the AEC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the AEC's Public Document Room. If this report contains any information that you (or your contractor) believe to be proprietary, it is necessary that you make a written application within 20 days to this office to withhold such information from public disclosure. Any such application must include a full statement of the reasons on the basis of which it is claimed that the information is proprietary, and should be prepared so that proprietary information identified in the application is contained in a separate part of the document. If we do not hear from you in this regard within the specified period, the report will be placed in the Public Document Room.

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OFFICE ▶	CRESS				
SURNAME ▶	Walton/mjd	Tallou	Carlson	O'Reilly	Greenman
DATE ▶	7/18/74	7-18-74	7/18/74		7/18/74

Jersey Central Power and Light -2-
Company

No reply to this letter is required; however, should you have any questions concerning this inspection, we will be pleased to discuss them with you.

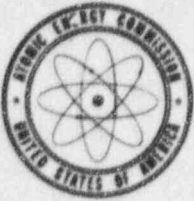
Sincerely,

Robert T. Carlson, Chief
Facility Construction and Engineering
Support Branch

Enclosure:
EO Inspection Report No. 50-219/74-12

cc: Mr. J. T. Carroll, Station Superintendent

bcc (w/encls):
RO Chief, FS&EB
RO:HQ (5)
DL (4 w/encls plus 9 cyps of report only)
DR Central Files
RS (3)
PDR
Local PDR
RO Files
N&IC
DTIE
State of New Jersey
RO Directors (II, III, IV) (Report Only)
OGC
Mr. A. Z. Roisman, Counsel for Citizens Committee for Protection
of the Environment



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

V2B-R

JUL 16 1974

J. P. O'Reilly, Director, Region I

JERSEY CENTRAL POWER AND LIGHT COMPANY (JCP&L) OYSTER CREEK, LEAK IN
BOTTOM VESSEL HEAD AT INSTRUMENT PENETRATION

REF: YOUR MEMO TO J. G. DAVIS DATED JUNE 19, 1974, SAME SUBJECT

In accordance with your memo, we have contacted Licensing regarding this matter. We are informed that the licensee has committed in writing to perform a visual inspection of all instrument penetrations at the next scheduled outage. In addition, leakage tests will be performed during each scheduled outage. In regard to unidentified leakage surveillance, Licensing believes the existing program to be appropriate for continued surveillance. A copy of Licensing's safety evaluation is attached.

A handwritten signature in cursive script, reading "Karl V. Seyffrit", is positioned above the typed name.

Karl V. Seyffrit, Chief
Technical Assistance Branch
Directorate of Regulatory Operations

Enclosure:
As Stated

cc: J. G. Davis
B. H. Grier
H. D. Thornburg
J. H. Sniezek

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

June 24, 1974

Docket No. 50-219

Jersey Central Power & Light Company
ATTN: Mr. I. R. Finrock, Jr.
Vice President - Generation
Madison Avenue at Punch Bowl Road
Morristown, New Jersey 07960

Gentlemen:

Your letter dated June 17, 1974, submitted "Special Report of Investigations and Repair of Incore Flux Monitor Penetration" for the Oyster Creek Station.

We have evaluated this report and concur with your resolution of this matter. The basis for our conclusion is presented in our Safety Evaluation, a copy of which is enclosed.

Sincerely,

A handwritten signature in cursive script that reads "Karl R. Goller".

Karl R. Goller, Assistant Director
for Operating Reactors
Directorate of Licensing

Enclosure:
Safety Evaluation

cc w/encl:
See next page

83040.80463-2pp

June 24, 1974

cc w/enclosure:

G. F. Trowbridge, Esquire
Shaw, Pittman, Potts & Trowbridge
910 - 17th Street, N. W.
Washington, D. C. 20006

GPU Service Corporation
ATTN: Mr. Thomas M. Crimmins
Safety & Licensing Manager
260 Cherry Hill Road
Parsippany, New Jersey 07054

Anthony Z. Roisman, Esquire
Berlin, Roisman and Kessler
1712 N Street, N. W.
Washington, D. C. 20036

Paul Rosenberg, Esquire
Daniel Rappoport, Esquire
2323 S. Broad Street
Trenton, New Jersey 08610

Honorable Joseph W. Ferraro, Jr.
Deputy Attorney General
State of New Jersey
101 Commerce Street - Room 208
Neward, New Jersey 07102

Ocean County Library
15 Hooper Avenue
Toms River, New Jersey 08753

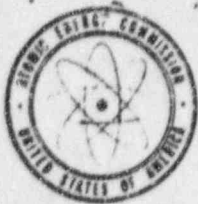
Burtis W. Horner, Esquire
Stryker, Tams and Dill
55 Madison Avenue
Morristown, New Jersey 07960

Honorable William W. Mason
Mayor, Lacey Township
P. O. Box 475
Forked River, New Jersey 08731

cc w/enclosure and cy of JCP&L ltr
dtd 6/17/74:

Mr. Paul Arbesman
Environmental Protection Agency
26 Federal Plaza
New York, New York 10007

George F. Kugler, Jr.
Attorney General
State of New Jersey
State House Annex
Trenton, New Jersey 08625



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

SAFETY EVALUATION BY THE DIRECTORATE OF LICENSING

JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

Introduction

In an abnormal occurrence report dated May 30, 1974, Jersey Central Power and Light Company (JCPL) reported the detection of a small leak of primary coolant from incore flux monitor penetration 05-28 in the Oyster Creek reactor vessel. On June 13 and 14, 1974, representatives of the Licensing staff reviewed records of weld repairs of the incore flux monitor housing welds performed in 1968 and held discussions regarding the occurrence with JCPL representatives at the Oyster Creek site. The results of the review and discussions are contained in a report of the meeting dated June 21, 1974. In a letter dated June 17, 1974, JCPL submitted "Special Report of Investigations and Repair of Incore Flux Monitor Penetration" regarding the repair of the leak from the incore flux monitor penetration 05-28 in the Oyster Creek reactor vessel.

Evaluation

Leakage from the incore flux monitoring housing penetration of the Oyster Creek reactor vessel at location 05-28 was observed during an inspection while the reactor was subjected to 850 psig at 164°F. The leakage was measured to be about 0.02 gpm, which is well within the allowable unidentified leakage rate from the primary coolant system of 5 gpm during plant operation.

A visual inspection of all penetrations in the bottom head of the reactor vessel was conducted by JCPL after removal of the insulation from the bottom head. One control rod drive penetration (18-47) had traces of calcium carbonate deposit around the penetration, but these trace deposits were proved to be non-radioactive. The particles removed from the vessel around incore flux monitor housing 05-28, however, were radioactive. All other penetrations

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showed no evidence of leakage. There were no indications of leakage around control rod drive penetration 18-47 during pressure tests conducted to verify the incore flux monitor penetration leakage. We concur with JCPL's conclusions that any leak that might have occurred in this control rod drive penetration was apparently sealed prior to operation of the reactor.

The 304 stainless steel incore flux monitor housing, 05-28, and the inconel weld joint of the housing to the vessel were subjected to eddy current and ultrasonic tests and no defects detected. Helium sniff and additional pressure tests verified that the leakage was not through the 1/4" wall of the incore flux monitor housing. It was then postulated that weld slag inclusions, so small as to be undetectable by nondestructive test techniques, may have linked together to cause a small leakage path through the inconel weld. JCPL concluded, and we agree, that based on the UT and eddy current tests results, the strength of the weld is not significantly impaired. JCPL proposed, however, to install a mechanical restraint below the lower flange of incore flux monitor housing 05-28 to prevent the possibility of ejection of the housing from the reactor vessel in the unlikely event of a complete failure of the housing or the weld.

In the abnormal occurrence report dated May 30, 1974, JCPL referenced an analysis of the consequences of a loss-of-coolant accident (LOCA) resulting from the postulated failure of an incore flux monitor tube. The penetration in the bottom head for an incore flux monitor tube has a break area of 0.0218 ft². Assuming the worst conditions (which are considered to be the availability of only a single loop of core spray cooling and operating at full power) at the time of the LOCA, the fuel peak clad temperature is calculated to be less than 1000°F (reference PSAR Amendment No. 67), which is well below the acceptable limits (2300°F) of the ECCS Interim Acceptance Criteria. JCPL states, and we agree, that the likelihood of such an accident resulting from the leakage detected in the incore flux monitor housing 05-28 is highly improbable. The reasons for this conclusion are that (1) the leakage area is calculated to be the equivalent to a 1 mil (10⁻³ inch) orifice, (2) periodic checks will be made in the future to inspect for leakage and (3) only 0.2 inch² of weld metal would retain the housing in the vessel and the nominal weld area is in excess of 6 inch².

JCPL proposes to seal the leak by rolling the incore flux monitor housing against the reactor vessel hole. As explained in the June 17, 1974, JCPL report, this process of rolling is not unique for sealing against leakage under high differential pressure. The nominal diametral clearance between the housing and the vessel surface is 10 mils. The operation to seal this clearance will be performed using procedures and equipment for rolling tubes in high pressure boilers, feed heaters, and other applications. The rolled joint will start about 1/4 inch below the weld and extend below the weld for a distance of 6 1/4 inches. This joint will be similar to

those used in nuclear steam generators. In addition General Electric Company (GE) has reported in an informal memo to JCPL (and verified by the staff at the site) that this type of repair has been successfully used to repair leakage from a similar incore flux monitor housing in the reactor vessel bottom head at the SENN plant in Italy. Furthermore, GE has stated that the SENN plant has now operated for about 8 years since the repair was made and no leakage has reoccurred in the repaired penetration.

JCPL has stated that the following tests will be performed on the incore flux monitor penetration prior to reactor operation:

- (1) UT and eddy current tests of the rolled portion of the housing, and
- (2) Inspection for leakage from the repaired area with the reactor vessel pressurized to 850 psig.

JCPL has also stated that leakage tests will be performed after each scheduled outage and after conduct of any maintenance operation which requires primary system leak testing, and that a visual inspection of all penetrations in the bottom head of the Oyster Creek reactor vessel will be made during the next refueling outage to verify all penetrations are leak tight. We conclude that these surveillance measures will provide reasonable assurance that future similar defects can be located before they progress to a point of failure.

Conclusion

Based on the above evaluation, the staff concludes that there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner.

Date: June 24, 1974