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MAY 15 1980

Docket No. 50-219

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

Dear Mr. Finfrock:

The Commission has issued the enclosed Amendment No. 47 to Provisional Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station. This amendment is in response to your application dated March 31, 1980.

The amendment adds a new license condition (Paragraph 3.G) which requires the replacement of core spray spargers during the 1981 refueling outage.

During our review of your application, we found it to be more appropriate to incorporate a license condition rather than to modify Technical Specification 4.3 as you proposed. We have discussed this change with your representative and have mutually agreed upon it.

Copies of our related Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original signed by

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

Enclosures:
1. Amendment No. to License No. DPR-16
2. Safety Evaluation
3. Notice of Issuance

cc w/enclosures:
See next page

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SURNAME	HSmith:cc	WPaulson	CWoodhead	DCrutchfield	GLainas for
DATE	5/12/80	5/13/80	5/14/80	5/15/80	5/15/80

NRC FORM 318 (9-76) NRCM 0240 ★ U.S. GOVERNMENT PRINTING OFFICE: 1978 - 265 - 769

cc
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Director, Technical Assessment
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Arlington, Virginia 20460

U. S. Environmental Protection
Agency
Region II Office
ATTN: EIS COORDINATOR
26 Federal Plaza
New York, New York 10007

*(w/incoming dtd March 31, 1980)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JERSEY CENTRAL POWER & LIGHT COMPANY

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 47
License No. DPR-16

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Jersey Central Power & Light Company (the licensee) dated March 31, 1980, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, Provisional Operating License No. DPR-16 is hereby amended by adding paragraph 3.G to read as follows:

   G. The licensee shall replace all the core spray spargers during the 1981 refueling outage as described in the NRC's staff Safety Evaluation dated May 15, 1980.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis M. Crutchfield

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

Date of Issuance: May 15, 1980

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 47 TO LICENSE NO. DPR-16

JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

By letter dated March 31, 1980, Jersey Central Power & Light Company requested a Technical specification change that would modify section 4.3 to provide for an augmented inservice inspection of the core spray spargers and repair assemblies beginning with the 1981 refueling outage.

Scheduled inservice inspection and subsequent tests of the reactor internals during the 1978 refueling outage at the Oyster Creek Nuclear Generating Station identified and confirmed the existence of a crack in a portion of one of the two core spray system spargers inside the reactor vessel. Action was taken during the Fall 1978 outage to strengthen the sparger at the crack location by the instal - lation of a mechanical clamp assembly.

During the 1980 refueling outage, additional cracks were discovered by a significantly improved procedure for inservice inspection of the spargers. (It is not known whether these are new cracks, or previously existing cracks that were overlooked during the 1978 inspection.)

The proposed repair was designed to return the core spray system to a fully operational state capable of delivering the required core spray. The associated Technical Specification change would have required augmentation of the inspection requirements to assure continued system functional capability.

2.0 DISCUSSION

The Oyster Creek reactor vessel contains two independent core spray sparger assemblies which are fed by two separate core spray systems. Each of these systems is provided with full redundant pumps, valves, power supplies, controls and instrumentation, so that either system can perform the safety function in the presence of a single failure in the other system. Only one system is needed to accomplish the safety objective. When the system is activated, core spray water is directed through the reactor vessel and shroud into the core spray sparger assemblies. Each core spray sparger contains spray nozzles that are designed to provide a spray pattern that ensures each fuel bundle receives adequate coolant flow.

Each sparger consists of two 180° segments, each of which is supported at the centrally located inlet pipe connection that is welded to the shroud, and by three approximately equally spaced support brackets on either side of the central inlet pipe connection. The sparger arms, supported in the radial and vertical directions, are free to slide circumferentially as required to accommodate any differential thermal expansion between the shroud and the sparger during injection of cool core spray water.

Inservice inspections performed during the Fall 1978 outage revealed a single crack in the upper sparger that was determined to be through-wall for about 135° circumferentially.

Although analyses indicated that the cracked sparger would be adequate for continued operation, a mechanical support clamp was installed to assure that both core spray systems would have full design capability.

Examination of the spargers during the 1980 refueling outage showed that the repair clamp assembly remained as installed in 1978. Inspection of the balance of the spargers in January 1980 revealed a number of additional cracks in both upper and lower spargers. The proposed repair is the addition of seven clamp assemblies to the upper sparger and two clamp assemblies to the lower sparger. These clamp assemblies are the same in concept, material, and cross-section as the repair clamp installed in 1978.

The requested Technical Specification change would require that an inspection of both core spray spargers and of the repair assemblies be performed at each of the future refueling outages, starting in 1981.

3.0 EVALUATION

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.

Although the stresses from the normal operating loads in the core spray sparger are well below the yield stress of the stainless steel material, the analysis does not show that those stresses are at or below the K_{ISCC} (stress intensity, below which a crack will not propagate by stress corrosion) for the material-environment combination in question.

The analysis suggests that 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., could conceivably cause the cracking observed, which is believed to be stress corrosion cracking. The analysis also suggests that, because the opening of cracks relieves stresses in other locations in the sparger, the susceptibility to stress corrosion cracking in those locations is reduced.

We concur with the licensee that high installation stresses, material sensitization, cold work, local heating etc. are all probable causes for the initiation of stress corrosion cracking and we agree that crack opening could relieve stresses and therefore reduce the susceptibility of stress corrosion cracking in other locations. However, there is insufficient basis to conclude that stress corrosion crack initiation and propagation has been eliminated completely.

4.0 SUMMARY

We have evaluated the Repair Proposed No. 475-01, "Oyster Creek Nuclear Generating Station Core Spray System Sparger Repair" and have met with the licensee and his contractors regarding this matter. We conclude that the proposed interim repair of the Oyster Creek spargers is adequate for the present condition of the spargers and does not represent a significant change in safety margin from that of the original design, nor will the installation of the repair hardware increase the probability of an accident. Thus, there is reasonable assurance that the health and safety of the general public will not be jeopardized by continued operation of the as-repaired facility for the next fuel cycle. Concern over significant amounts of additional cracking over the long term remain.

The licensee is proceeding with the design of replacement core spray spargers and has stated that they will be installed at the next refueling outage if the design is completed and the hardware can be procured. We conclude that this effort should be accelerated and that the existing spargers should be replaced during the 1981 refueling outage. We have discussed this requirement with the licensee's representative and he has agreed to this replacement schedule. The licensee also agreed that the requested Technical Specification change for augmented inservice inspection of the core spray spargers and repair assemblies is no longer appropriate because the spargers will be replaced in 1981.

5.0 ENVIRONMENTAL CONSIDERATION

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

6.0 CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: May 15, 1980

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-219

JERSEY CENTRAL POWER & LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO PROVISIONAL OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 47 to Provisional Operating License No. DPR-16, issued to Jersey Central Power & Light Company (the licensee), which revised the license for operation of the Oyster Creek Nuclear Generating Station (the facility) located in Ocean County, New Jersey. The amendment is effective as of its date of issuance.

The amendment adds a new license condition (Paragraph 3.G) which requires the replacement of core spray spargers during the 1981 refueling outage.

The application for amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this action was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated March 31, 1980, (2) Amendment No. 47 to License No. DPR-16, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. 20555, and at the Ocean County Library, Brick Township Branch, 401 Chambers Bridge Road, Brick Town, New Jersey 08723. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 15th day of May, 1980.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis M. Crutchfield

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

S.P. Section 4.3 ~~Chief~~ B Chief Dispatch

William O. Miller, Chief
License Fee Management Branch, ADM

Date: 5/5/80
Amended Form Date: 5/15/80

FACILITY AMENDMENT CLASSIFICATION - DOCKET NO(S). 50-219

Licensee: Jersey Central

Plant Name and Unit(s): Oyster Creek

License No(s): DPR-16 Mail Control No: 8004020319

Request Dated: 3/31/80 Fee Remitted: Yes ✓ No ___

Assigned TAC No: 12661

Licensee's Fee Classification: Class I ___, II ___, III ✓ ($4,000), IV ___, V ___, VI ___, None

Subject: Core Spray System Spargers (augmented inservice inspection)

Amendment No. 47 Date of Issuance ___

[X] 1. This request has been reviewed by DOR/DPM in accordance with Section 170.22 of Part 170 and is properly categorized.

[ ] 2. This request is incorrectly classified and should be properly categorized as Class ___. Justification for classification or reclassification: ___

[ ] 3. Additional information is required to properly categorize the request: ___

[ ] 4. This request is a Class ___ type of action and is exempt from fees because it:

(a) ___ was filed by a nonprofit educational institution,

(b) ___ was filed by a Government agency and is not for a power reactor,

(c) ___ is for a Class ___ (can only be a I, II, or III) amendment which results from a written Commission request dated ___ for the application and the amendment is to simplify or clarify license or technical specifications, has only minor safety significance, and is being issued for the convenience of the Commission, or

(d) ___ other (state reason therefor): ___

HS 4/8/80
[signature] Nowicki 4/8/80

*Dennis M. Crutchfield
Division of Operating Reactors/Project Management

[X] THE INITIAL FEE DETERMINATION HAS BEEN REASSESSED AND IS HEREBY AFFIRMED W. A. [signature] W. Paulson 5-13-80 Date

[ ] The above request has been reviewed and is exempt from fees.

William O. Miller, Chief
License Fee Management Branch

Date

LFMB 6/78