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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 77 TO FACILITY OPERATING LICENSE NO. DPR-26

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

Introduction

By a letter dated February 28, 1975, and subsequently revised in a letter dated August 4, 1980, Consolidated Edison Company of New York, Inc. (Con Ed) proposed to amend its operating license DPR-26 for Indian Point, Unit No. 2, by submitting a revision to the Technical Specifications. The proposed changes were submitted in response to our December 18, 1974 request and consist of the addition of items G.1.b and H to Limiting Condition for Operation (LCO) 3.3, the addition of items E-G to Surveillance Requirement (SR) 4.5, and the revisions to item G.2 of existing LCO 3.3, item D of SR 4.5, and Tables 4.1-1 and 4.1-3 of SR 4.1.

Discussion

Our letter of December 18, 1974, to Con Ed indicated the need for Indian Point's, Unit No. 2, Technical Specifications to include additional items within their LCOs and SRs in order to assure confidence that engineered safety feature (ESF) air filtration systems would function reliably, when required, at a degree of efficiency equal to or greater than that assumed in previously performed accident analyses. Con Ed initially responded to our request on February 28, 1975, and following discussions with the NRC staff, modified their response in a letter dated August 4, 1980.

Con Ed's proposed changes to the Technical Specifications include:

(1) revisions to item G.2 of LCO 3.3, to item D of SR 4.5, and to Tables 4.1-1 and 4.1-3 of SR 4.1, which address the hydrogen recombiner system, the post-accident containment venting system, the control room air filtration system, the fuel handling building filtration system, and the containment air filtration system; and

(2) the addition of items G.1.b and H to LCO 3.3 and items E-G to SR 4.5, which address the control room air filtration system, the fuel storage building air filtration system, and the post-accident containment venting system.

Con Ed's proposal includes the addition of a technical specification on a system not presently covered in the technical specification (the post-accident containment venting system) and the expansion of the present technical specification for the control room air filtration system, the containment air filtration system, and the fuel storage building air filtration system, such that the frequency of some tests are increased and the number of tests performed to establish the system's operability are increased.

The changes were proposed by Con Ed so that the specified filter test program would conform to the objectives of the model Technical Specifications included in our letter of December 18, 1974.

Evaluation

Our evaluation was based upon Positions C.5 (in-place testing criteria) and C.6 (laboratory testing criteria for activated charcoal) of Regualtory Guide 1.52, Revision 2, "Design, Testing, and Maintenance Criteria for Atmosperic Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants", and on the Standard Technical Specifications for ESF air filtration systems for Westinghouse nuclear reactors (NUREG-0452). The technical specifications proposed by Con Ed would add, as a Part of LCO 3.3.G and as SR 4.5.G, limiting conditions for operation and surveillance requirements for the post-accident containment venting system and would add to LCO 3.3, as item H, a limiting condition for operation which addresses the control room air filtration system. The proposed changes to Tables 4.1-1 and 4.1-3 and SR 4.5.D would increase the number of tests to be performed on the control room filtration system, the containment air filtration system and the fuel storage building air filtration system through the addition of SRs 4.5.E and 4.5.F and the modification to 4.5.D.

These proposed additions and revisions to the present technical specifications expand the scope of the LCOs and SRs such that they now specify required operator action if the particular ESF filter system is found inoperable, and increase the frequency and the number of tests to be performed to demonstrate that the system is operable.

The following sections discuss each ESF filter system for which a LCO or SR was added or revised.

Post-Accident Containment Venting System

Con Ed proposed to add to the present LCO 3.3.G limiting conditions of operations for the post-accident containment venting system. The present LCO 3.3.G addresses only the hydrogen recombiner system. At Indian Point, Unit No. 2, either the hydrogen recombiner system or the post-accident containment venting system may be utilized for the purpose of handling the buildup of hydrogen in the containment after a LOCA.

Con Ed proposed in LCO 3.3.G.1 that the reactor could not be made critical unless the post-accident containment venting system was operable. They also proposed that during power operation the requirements of 3.3.G.1 may be modified to allow either the hydrogen recombiner system or the post-accident containment venting system to be inoperable for a period of time. Con Ed proposed that one hydrogen recombiner could be inoperable for a period of 30 days provided the other recombiner unit and the post-accident containment venting system are operable. The present LCO 3.3.G.2.a allows one hydrogen recombiner to be inoperable for a period of 7 days, provided the other recombiner unit is operable.

Con Ed has proposed as LCO 3.3.G.2.b that the post-accident containment venting system may be inoperable for a period of 30 days provided both hydrogen recombiners are operable. Since the hydrogen recombiners and the post-accident containment venting system are redundant systems we find it acceptable to allow either one hydrogen recombiner or the post-accident containment vent system to be inoperable for a period of 30 days.

Con Ed also proposed to modify LCO 3.3.G.2.c and d to alter the periods of operability for the containment atmosphere sampling line and sampling pump from the present 7 days to 30 days. After discussion with the licensee concerning the basis for this request for change, the licensee has agreed to leave the period of inoperability at 7 days for both the sampling line and the sampling pump.

In the present specification 3.3.G.2, if the requirements of LCO 3.3.G.1 could not be satisfied within 48 hours after the allowable period of inoperability, then the reactor was required to be in the cold shutdown condition utilizing normal operating procedures. Con Ed has proposed to eliminate this requirement from LCO 3.3.G.2 since the severity of the accident is when the unit is at significant power level and not at the hot shutdown condition. Therefore, the deletion of this requirement is acceptable.

Con Ed also proposed to add, as SR 4.5.G, various tests to determine the operability of the post-accident containment venting system. These tests included;

(1) verifying a system flow rate during system operations when tested in accordance with ANSI N510;

(2) verifying that the system satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52; and

(3) verifying that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regualtory Guide 1.52 meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52.

Con Ed proposed that the tests in (2) and (3) above would be performed once per 18 months, after any structural maintenance of the HEPA filter or charcoal adsorber housings or after any painting, fire or chemical releases occurred which could alter filter integrity. In addition, the tests in (2) above would be performed after complete or partial replacement of the HEPA filter bank or charcoal adsorber. The test in (3) above would also be performed after 720 hours of charcoal adsorber operation. Con Ed also proposed that once per 18 months the pressure drop across the HEPA filter and charcoal adsorbers be verified to be less than 6 inches water gauge while operating at ambient conditions and that it be verified that the system valves can be manually opened.

We have reviewed Con Ed's proposed SR 4.5.G and find it acceptable with some word changes. These changes are common to all the surveillance requirements that Con Ed has proposed for ESF filter systems. Con Ed has used this phase "within $\pm$ 10% of the required accident flow rate...". It is our position that the flow rate should be identified for each ESF filter system. We have discussed this with Con Ed. They have agreed with our position and

have provided the flow rate for all ESF grade filter systems except the post-accident containment venting system. The flow rate of the post-accident containment venting system is a function of the pressure in the containment. The system is designed such that a minimum internal containment pressure of 2.14 psig is required for the venting system to operate. The flow rate and the duration of venting required to maintain the hydrogen concentration at or below 3% of the containment volume are determined from the containment hydrogen concentration measurements and the hydrogen generation rate. The containment pressure necessary to obtain the required vent flow is then determined. Using one of the instrument air compressors, hydrogen free air is pumped into the containment until the required containment pressure is reached. The air supply is then stopped and the supply/exhaust line isolated by valves outside containment. The addition of air to pressurize the containment dilutes the hydrogen. The containment will remain isolated until the analysis of samples indicates that the concentration is again approaching 3% by volume. Venting will then be started.

Con Ed has not measured a flow rate in this filter system during the course of its filter testing program. Therefore, after discussions with Con Ed, we have concluded that the flow rate for this system should be left unspecified until the next refueling outage at which time the determination would be made as to its value. This value would then be included in the technical specifications.

Con Ed has also agreed to verify that no flow blockage exists in the system by passing flow through the filter system once per 18 months or after any structural maintenance on the HEPA filter or charcoal adsorber housings or at any time painting, fire, or chemical releases could alter filter integrity.

For the in-place leak rate testing criteria for the HEPA filters, Con Ed proposed a removal efficiency criterion for DOP that was a function of the removal efficiency assumed in the accident evaluation. It is our position that the plant operators should have clear guidance as to the efficiency required for complying with this testing requirement. We have discussed this with Con Ed and they have agreed to include the specific removal efficiency in all specifications involving in-place DOP testing. This value will be 99% for all filter systems.

We have reviewed the proposed addition to LCO 3.3.G and addition of SR 4.5.G for this ESF filter system. We find that the LCO and SR provide a recognition of the importance of this system to the protection of the general health and safety of the public and to plant personnel that is not presently in the existing technical specifications. We find that the proposed specifications meet the intent of position C.5 and C.6 of Regulatory Guide 1.52 and the Standard Technical Specification for ESF filter systems for Westinghouse

reactors. We find the proposed specifications consistent with the intent of present requirements for new operating licensees and that the addition of the proposed specifications will ensure increased confidence that the system will perform when called upon. With the addition of our comments to the proposed technical specifications, LCO 3.3.G and SR 4.5.G are judged acceptable.

Control Room Air Filtration System

Con Ed proposed LCO 3.3.H to address the control room air filtration system. Previously there was no LCO which addressed this system. Con Ed proposed that this system be operable at all times when containment integrity is required. Con Ed also proposed that the system could become inoperable for a period of up to 7 days. If the system is still inoperable at the end of this 7 days, then the reactor is to be placed in the hot shutdown condition utilizing normal operating procedures. If the system is not operable within an additional 48 hours, then the reactor is to be placed in the cold shutdown condition. The control room air filtration system is not a redundant system. It is our position that the time period for the system to be inoperable for nonredundant systems should be 3.5 days rather than 7 days. We have discussed our position with Con Ed and they have agreed to this change.

Table 4.1-1 of SR 4.1 specifies minimum frequencies for checks, calibratrion and tests of instrument channels. In Table 4.1-1 the control room air

filtration system must have its damper checked prior to each refueling outage for proper operation in the accident mode following an isolation signal. In addition, from Table 4.1-3 of SR 4.1, this same system must have its charcoal filter tested in-place and show $\geq$ 99.5% removal of freon or is equivalent, must be inspected visually, and a pressure drop test conducted to show less than 5 inches of water across the filters. Con Ed has proposed to eliminate these testing requirements from Tables 4.1-1 and 4.1-3, and to replace them with tests proposed as SR 4.5.E. The tests proposed in SR 4.5.E are essentially the same as those which were proposed for the post-accident containment vent system. However, two additional requirements, which Con Ed included to demonstrate the system as operable are:

(1) a requirement to initiate from the control room flow through the HEPA filters and charcoal adsorbers once per 31 days and to verify that the system operates for at least 10 hours;

(2) verification that on a Safety Injection Test Signal the system switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks; and

(3) verification that the system maintains the control room at a neutral or positive pressure relative to the outside atmosphere during system operation.

We have reviewed the proposed SR 4.5.E and have the same comments on the proposed SR 4.5.E as we had on the post-accident containment vent system, SR 4.5.G. In addition to these comments, we discussed with the licensee

that since the control room air filtration system does not contain any electrical heaters, the system need only operate for 15 minutes rather than 10 hours and that it should be verified that the system switches into the recirculation mode on a high radiation signal in the control room, in addition to the verification on a Safety Injection Test Signal. Con Ed has agreed to the incorporation of these changes to the proposed SR 4.5.E.

We have reviewed the proposed addition of LCO 3.3.H and SR 4.5.E for this ESF filter system. We find that the LCO and SR provide a recognition of the importance of this system to the protection of the general health and safety of the public and to plant personnel that is not presently in the existing technical specifications. We find that the proposed specifications meet the intent of position C.5 and C.6 of Regulatory Guide 1.52 and the Standard Technical Specification for ESF filter systems for Westinghouse reactors. We find the proposed addition consistent with the intent of present requirements for new operating licensees and that the addition of the proposed specifications will ensure increased confidence that the system will perform when called upon. With the incorporation of our comments, the proposed LCO 3.3.H and SR 4.5.E are judged acceptable.

Containment Air Filtration System

Item 12 of Table 4.1-3 of the present SR 4.1 contains testing requirements for the containment air filtration system. The tests in this Table included

(1) a visual inspection;

(2) pressure drop showing < 5 inches of water;

(3) in-place DOP test showing ≥ 99% removal for HEPA filters;

(4) laboratory test showing ≥ 50% removal for methyl radioiodine; and

(5) ignition test of charcoal showing no ignition at temperatures ≥ 300 C.

Tests 1-3 are performed during each refueling outage or following work on the filters, which could alter the filter system's integrity. The tests that Con Ed has proposed in SR 4.5.D are nearly identical to the tests which were proposed for the control room air filtration system. The comments which were made on the surveillance requirements of the control room are also applicable to the containment air filtration system except that the system need only be verified to start automatically on a Safety Injection Test Signal.

The design of the containment air filtration unit is such that 65,000 cfm flows through the HEPA filter. Of this 65,000 cfm, 8,000 cfm is diverted through the charcoal adsorbers. We have discussed with Con Ed our concern that tests be performed to assure that 65,000 cfm flows to the HEPA filter and that of that flow, 8,000 cfm is diverted to the charcoal adsorbers. We have discussed this concern with Con Ed and they have agreed to include in-place tests to verify that these flow conditions exist. In addition, Con Ed has agreed to add as SR 4.5.D.6 a specification to verify that the flow rate is 65,000 cfm to the HEPA filter and 8,000 cfm to the charcoal adsorber when tested in-place following any partial or complete replacement of the charcoal adsorber bank.

We have reviewed the proposed SR 4.5.D for this ESF filter system. We find that the SR provides a recognition of the importance of this system to the protection of the general health and safety of the public and to plant personnel that is not presently in the existing technical specifications. We find that the proposed specification meets the intent of postion C.5 and C.6 of Regulatory Guide 1.52 and the Standard Technical Specification for ESF filter systems for Westinghouse reactors. We find the proposed addition consistent with the intent of present requirements for new operating licensees and that the addition of the proposed specifications will ensure increased confidence that the system will perform when called upon. With the incorporation of our comments, the proposed SR 4.5.D is judged acceptable.

Fuel Storage Building Air Filtration System

The fuel storage building air filtration system is presently required to undergo the same tests as the containment air filtration system. These tests, which were identified in the previous section of this SER, are identified in the present Table 4.1-3. Con Ed has proposed to eliminate this system from Table 4.1-3 and has proposed SR 4.5.F in its place.

The tests which have been proposed in SR 4.5.F are nearly identical to those which were proposed for the control room air filtration system. Our comments on the control room air filtration system SR 4.5.E are also applicable to the SR for the fuel storage building air filtration system. We have discussed these comments with Con Ed and they have agreed to the incorporation of our

comments. Con Ed has proposed a test to verify that the fuel storage building air filtration system maintains the spent fuel pool storage area at a negative pressure relative to the outside air during system operation. We find this test to be acceptable. Con Ed has not proposed a test to show that the system will actuate on receipt of a safety injection signal as was proposed for the control room air filtration system since the fuel storage building air filtration system will always be operating during refueling operations.

Con Ed proposed as SR 4.5.F.3 that the fuel storage building air filtration system be tested after 720 hours of operation to verify that a representative sample of the charcoal adsorber bed meets the testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Rev. 2, March 1978. The fuel storage building air filtration system operates continuously. Implementation of the proposed SR 4.5.F.3 would have resulted in unnecessary monthly laboratory analyses. The spent fuel building air filtration system is to be used when spent fuel has decayed for less than 35 days. LCO 3.8.12 requires that the system be operating during the movement of spent fuel with a decay time of less than 35 days. Therefore, it is important that the charcoal system be operable prior to handling spent fuel with less than 35 days decay time. The testing after 720 hours of operation is to assess the degradation of the charcoal as a result of weathering. We have discussed this with Con Ed and they have agreed to modifying SR 4.5.F.3 with the addition of the phrase "Prior to handling spent fuel which has decayed for less than 35 days". To ensure that the charcoal has not weathered after 720 hours (30 days) of

operation and prior to the end of the 35 days decay period, a statement was added to SR 4.5.E.3 which states that the laboratory analysis is good only for 720 hours of charcoal adsorber operation and that if spent fuel which has decayed for less than 35 days is still being handled, a new charcoal sample is required to be taken and a new laboratory analysis performed.

Con Ed proposed as SR 4.5.F.2.b that the air filtration system be tested to verify that bypass flow of the system is less than 1%. During discussions with Con Ed, it was determined that there are no diverting valves in the fuel storage building air filtration system. The only component that can be by-passed is the charcoal adsorber. This option has been removed by the sealing of the dampers such that all flow passes through the charcoal adsorbers. The only bypass flow that can occur is through the dampers. The freon test will determine this bypass leakage. Therefore, SR 4.5.F.2.b, as proposed, is not necessary. We have discussed this with Con Ed and they have agreed to its deletion.

We have reviewed the proposed SR 4.5.F for this ESF filter system. We find that the SR provides a recognition of the importance of this system to the protection of the general health and safety of the public and to plant personnel that is not presently in the existing technical specifications. We find that the proposed specifications meets the intent of position C.5 and C.6 of Regulatory Guide 1.52 and the Standard Technical Specification for ESF

filter systems for Westinghouse reactors. We find the proposed addition consistent with the intent of present requirements for new operating licensees and that the addition of the proposed specifications will ensure increased confidence that the system will perform when called upon. With the incorporation of our comments, the proposed SR 4.5.F is judged acceptable.

Summary

We have concluded that the proposed LCOs 3.3.H and 3.3.G and SR 4.5.D through 4.5.G to the Indian Point, Unit No. 2, Technical Specifications, when modified by our comments, are acceptable.

Environmental Consideration

We have determined that the amendments do 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 amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR Part 50.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do 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 these amendments will not be inimical to the commen defense and security or to the health and safety of the public.

Dated: