



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING

AMENDMENT NOS. 131 AND 134 TO FACILITY OPERATING

LICENSE NOS. DPR-44 and DPR-56

PHILADELPHIA ELECTRIC COMPANY
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
DELMARVA POWER AND LIGHT COMPANY
ATLANTIC CITY ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION, UNIT NOS. 2 AND 3

DOCKET NOS. 50-277 AND 50-278

1.0 INTRODUCTION

By letter dated October 1, 1981 as supplemented and amended on November 15, 1984, November 24, 1986, September 2 and November 18, 1987, and March 30, 1988, Philadelphia Electric Company requested an amendment to Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station, Unit Nos. 2 and 3. The amendments would change the Plant Technical Specifications (TS) 4.9.A and 3.9.B relating to diesel generator (DG) fuel oil system in response to guidance of Regulatory Guide (RG) 1.137, "Fuel Oil Systems for Standby Diesel Generators" issued in October 1979. The above guide identifies the quality criteria for DG fuel oil properties (e.g., specific or API gravity, viscosity, water and sediment), the sampling and testing requirements to assure the quality, and the required actions when the fuel oil does not meet the quality criteria. Based on its review of the 1981 submittal, the staff requested the licensee to revise the proposed TS changes indicating that they did not satisfy the requirements of RG 1.137. In response to the above request, the licensee provided submittals dated November 24, 1986, September 2 and November 18, 1987, and March 30, 1988.

In the above submittals, the licensee claimed that the newly proposed TS changes comply with the guidance on DG fuel oil systems in RG 1.137, except in one area (i.e., corrective action). For the exception, the licensee proposed an alternative approach and provided justification for the same. The staff's evaluation of the proposed TS changes for the DG fuel oil system for Peach Bottom Units 2 and 3 based on the licensee's updated submittals dated September 2 and November 18, 1987 and March 30, 1988 is provided below.

2.0 EVALUATION

The DG fuel oil system which supplies quality fuel oil to the DGs is one of the support systems for the DGs required to ensure their proper

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operation. Plant TS relating to the system spell out the quality criteria for the fuel oil, the sampling and testing requirements to ensure the quality, and additionally, the corrective actions in the event the fuel does not meet the specified quality criteria. Peach Bottom Units 2 & 3 have four DGs, each with its own main fuel storage tank, fuel oil transfer pump and day tank. Though normally each DG utilizes its own fuel oil storage tank, fuel transfer pump and fuel oil day tank to receive its fuel supply, the plant design also includes cross tie provisions to fill each fuel oil day tank from any one of the fuel storage tanks using any one of the fuel transfer pumps. This operational flexibility is included in the design to ensure the maximum availability of the DGs, in the event the fuel oil in any storage tank gets contaminated or any transfer pump fails.

The proposed TS requires removal of accumulated water once every 31 days from the main storage tanks and the day tanks and additionally from the day tank when its associated DG has been operated for more than one hour. Further, it requires flushing of the entire fuel oil system between the day tank and the injectors whenever it is suspected that water has entered the suction piping from the day tank. Regarding new fuel oil, the proposed TS spells out (1) the specifications for its properties (e.g., API gravity or specific gravity, kinematic viscosity, flash point, appearance and color) that have to be verified by sampling and testing, (2) the applicable ASTM documents in accordance with which the sampling and testing have to be conducted, and (3) the frequency for sampling (prior to its addition to the main storage tanks) and testing (either prior to its addition to the main storage tanks or within 31 days of obtaining the oil sample, as appropriate). Regarding the existing fuel oil, the proposed TS identifies (1) the condition (total particulate contamination level) to be verified, (2) the ASTM document (ASTM D2276-78) in accordance with which the sampling and testing have to be conducted, and (3) the frequency for sampling and testing (once every 31 days). Specifically, the TS requires verifying that the total particulate contamination in the existing fuel oil in the storage tank is less than 10 mg/liter, when it is tested in accordance with ASTM D2276-78, Method A. The sampling and testing procedures for the new and existing fuel oil identified in the licensee's proposed TS are the same as those that have been previously approved (for example, on the McGuire plant in 1984) by the staff, except in one area. The exception pertains to the licensee's specified pore size of up to 3 microns (instead of 0.8 microns as specified in ASTM D2276-78) for the filter used for testing the existing fuel oil particulate contamination level. The licensee justified the above specification, stating that the diesel vendor had confirmed its acceptability for conducting the test, since the in-line filters on the diesels are not designed to trap particulates less than 3 microns in size, as passage of such particulates through the fuel injectors has not been known to cause any degradation of the engine performance. The proposed TS also includes other surveillance requirements (i.e., draining, removing accumulated sediment and cleaning each fuel oil storage tank once every 10 years; checking the storage tank cathodic protection system periodically) which are the same as those

specified in RG 1.137. Based on the above considerations, the staff finds the licensee's proposed TS changes relating to sampling and testing of the DG fuel oil (both new and existing) comply with the intent and purpose of RG 1.137, in this regard.

Regarding corrective actions when the total particulate contamination is equal to or exceeds the limit of 10 mg/liter, the licensee proposed a T.S. 3.9.B with two features: either declare the associated DG inoperable as recommended by RG 1.137 or implement the following actions (alternative approach in the November 18, 1987 submittal):

1. Isolate the contaminated storage tank from the DG fuel oil system and supply the associated DG, fuel oil from one of the remaining storage tanks within 8 hours, and
2. Establish and maintain the specified minimum of 104,000 gallons of DG fuel oil in the other three main storage tanks within 24 hours, and
3. Sample the fuel oil in the other three main storage tanks and confirm compliance with the specified particulate contamination level (less than 10 mg/liters) within 24 hours, and
4. Replace the unacceptable fuel oil with acceptable fuel oil in the affected storage tank and return it to service within 7 days or place the reactors in cold shutdown within 24 hours.

The licensee stated that the alternative approach will not compromise the currently existing electrical independence among the 4 DGs for the following reasons:

1. The fuel oil transfer pump dedicated to the affected DG will still be used to transfer oil to the associated day tank, since the cross ties between the day tanks and the storage tanks are located upstream of the transfer pumps, and
2. There are no electrical components upstream of the transfer pumps which could be intertied to compromise electrical independence.

The licensee has also committed, in the November 18, 1987 submittal, to verify, prior to the implementation of the proposed alternative approach, (1) the availability of adequate NPSH in the storage tank for two fuel oil transfer pumps, and (2) by testing, the capability of the system to handle increased flow through the common piping segment. In this context, the staff notes, as supported in the licensee's March 30, 1988 submittal, that the DG fuel oil system is safety-related, Q-listed and seismic Category I, and the piping is in accordance with ANSI B31.1. Based on the above considerations, the staff has determined that there is reasonable assurance that common mode failure due to cross tie rendering two DGs inoperable will not occur, particularly, when it is realized that

the cross tie provision will be utilized only during a short time (7 days). The staff further notes that the alternative approach does not require accelerated surveillance testing of the remaining DGs and the ECCS (i.e., all low pressure core cooling and containment cooling subsystems) for demonstrating their operabilities. Current TS require such additional tests with one DG declared inoperable. This meets the intent of Generic Letter 84-15, "Proposed staff actions to improve and maintain diesel generator reliability," which recommends reduction of extraneous DG surveillance testing for improving and maintaining DG reliability. The staff also notes that both the approaches permit continued plant operation with only 3 DG fuel oil storage tanks up to 7 days provided the specified applicable actions (in the existing TS for a DG which is declared inoperable; in the proposed TS for the alternative approach) are implemented. Based on all the considerations discussed above, the staff finds the licensee's proposed TS changes relating to corrective actions meet the intent of RG 1.137 in this regard (i.e., supply acceptable quality fuel oil to the DGs; replacement of contaminated fuel oil, in the affected storage tank by acceptable fuel oil within a week).

The staff has also reviewed the licensee's proposed change to the associated basis section and finds it acceptable.

Based on the above findings the staff concludes that the licensee's proposed TS changes for the DG fuel oil system for Peach Bottom Units 2 and 3 comply with the intent and purpose of RG 1.137 and are, therefore, acceptable.

3.0 ENVIRONMENTAL CONSIDERATIONS

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of the amendments.

4.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register (53 FR 3957) on February 10, 1988 and consulted with the State of Pennsylvania. No public comments were received and the State of Pennsylvania did not have any comments.

The staff has concluded, based on the considerations discussed above, that:
(1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and
(2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: May 31, 1988