



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 92 TO
FACILITY OPERATING LICENSE NO. NPF-38
ENTERGY OPERATIONS, INC.
WATERFORD STEAM ELECTRIC STATION, UNIT 3
DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated May 8, 1991, as supplemented by letters dated March 6, 1992, and January 28, 1993, Entergy Operations, Inc. (the licensee), submitted a request for changes to the Waterford Steam Electric Station, Unit 3, Technical Specifications (TS). The requested changes would revise the amount of fuel oil in the feed tanks and storage tanks for the emergency diesel generator, revise the specific gravity of the fuel oil, clarify the testing of the interconnecting piping, and revise the frequency of testing of the diesels. This action was noticed in the Federal Register on June 26, 1991 (56 FR 29274). By letter dated March 6, 1992, the licensee withdrew the request to revise the frequency of testing of the diesels. By letter dated January 28, 1993, the licensee revised the outstanding request to modify that portion dealing with the amount of fuel oil in the feed tanks and storage tanks. This revision was noticed in the Federal Register on April 14, 1993 (58 FR 19478). The revision of specific gravity and clarification of testing the interconnected piping remained unchanged from these later submittals.

2.0 EVALUATION

2.1 Minimum Fuel Oil Volume

In the May 8, 1991, letter, the licensee proposed to change the fuel oil volume in the feed tanks from 337 to 339 gallons and storage tanks from 38,760 gallons to 34,000 gallons. These proposed changes presents two issues. The first issue involves the change in the feed tank volume resulted from new calculations using the more conservative minimum value of fuel oil specific gravity allowed by the technical specifications. This minimum value of specific gravity defines a slightly smaller energy content for the fuel. To assure the diesels can carry the same load for the same period of time, a slightly larger volume of fuel oil is needed for the feed tanks.

The second issue as originally proposed by the licensee would change the storage tank volume to 34,000 gallons to accommodate a full load of fuel oil from a vendor. Testing gradually lowers the volume of oil in the storage tanks from the design capacity of 41,000 gallons to the required minimum of

38,760 gallons and less. When the tank reaches this technical specification required volume, a tank truck is brought on site to restore the oil used in testing; this amounts to about 2240 gallons or about a third of a tank truck capacity. By lowering the amount of oil required by the technical specifications, the tank truck would be required to fill the storage tanks less often, saving trips to the facility.

The staff agreed with the licensee on the first issue because greater capacity is more conservative and, therefore, the change for the feed tank is acceptable. On the second issue, the staff concluded that the licensee did not provide adequate justification to lower the minimum required volume of fuel oil from a seven day supply to a five day supply. However, the staff did agree that the TS could be revised to provide some degree of flexibility. The present TS would require declaring the diesel generator inoperable if the available volume was as little as one gallon below the required 7-day supply. After some discussion and reanalysis by the licensee, a new proposal was submitted by the licensee in a letter dated March 6, 1992. That revision would raise the minimum required volume from 34,000 gallons to 38,000 gallons, which represents a 5-day supply at rated capacity load. The staff continued to discuss the issue with the licensee to preserve the 7-day load limit on fuel oil while still trying to attain a degree of flexibility within the TS. After additional analysis and discussion, a final proposal was submitted by the licensee in their January 28, 1993 letter. This new proposal affected the proposed volumes for the storage tanks only; i.e., the feed tank volume change as proposed in the original submittal and as found acceptable by the staff remains valid.

The licensee's proposal in the January 28, 1993, submittal would retain the requirement that the storage tank contain a minimum volume of 38,760 gallons of fuel or "a fuel oil volume less than 38,760 gallons and greater than 38,000 gallons of fuel for a period not to exceed 5-days." This proposal preserves the 7-day time-dependent supply in accordance with the recommendations of Regulatory Guide (R.G.) 1.137 (October 1979) and provides some degree of flexibility to replenish the supply before declaring a diesel generator inoperable. The latter is consistent with the intent of the improved Westinghouse Standard Technical Specifications (STS), NUREG-1431, which provides 48-hours to return the volume to the 7-day supply limit before declaring the diesel generator inoperable provided the volume does not fall below what is required to maintain a 6-day supply. The minimum volume lower limit proposed by the licensee is well above the volume required to maintain a 6-day time dependent load supply of fuel oil. In order to be more consistent with the NUREG-1431, the staff has added a provision to the licensee's proposed change, such that fuel oil would be required to be onsite within 48 hours after falling below the upper volume limit of 38,760 gallons. The specification as revised by the staff now requires "a fuel oil volume less than 38,760 gallons and greater than 38,000 gallons of fuel for a period not to exceed 5-days, provided replacement fuel oil is onsite within the first 48 hours." The licensee has agreed to this change.

The staff has reviewed the licensee's latest proposal and concludes that the proposed change to TS 3/4.8.1b.2.b, as revised by the staff and agreed to by the licensee, is acceptable. This conclusion is based on the retention of the minimum 7-day requirement in accordance with R.G. 1.137 and the 48 hour "grace period" which provides a degree of flexibility before declaring a diesel generator inoperable which is also consistent with NUREG-1431. The proposed corresponding changes to the bases for TS 3/4.8.1.1 (as revised by the staff to address the 48 hour provision) is also acceptable. The staff is presently reevaluating this TS requirement in the improved STS on a generic basis to possibly provide more flexibility than having to declare a diesel generator inoperable after 48 hours when the fuel oil is only a few gallons below the 7-day supply volume limit.

2.2 Surveillance Testing of Interconnecting Piping

The licensee in their May 8, 1991, letter proposed to clarify Surveillance Requirement 4.8.1.1.2d.10 on testing the interconnecting piping between the two storage tanks. The licensee had interpreted the requirement as being satisfied when all the pipes and valves had been tested including the interconnecting line downstream of the fuel transfer pumps. During our review we questioned the licensee's testing of the discharge interconnecting piping since the NRC does not give credit for that line to the safe operation of the Waterford plant. At our direction, the licensee reviewed their emergency procedures and other requirements and was unable to find a situation where the discharge line contributed to safety or where the NRC had given credit for the transfer of fuel oil through this line. On this basis, the staff developed alternative technical specification requirements for the licensee to periodically test the ability to transfer fuel oil from the storage tanks in one train through the opposite train fuel transfer pump to its feed tank via the suction side interconnecting line.

The licensee has reviewed the proposed technical specification and has agreed. Testing will occur at every 18 months frequency using the suction side interconnecting line. Each of the two transfer pumps will be tested in the appropriate lineup. It is noted that this is conservative in that flow through the interconnecting line in either direction would verify the line's capability; the pumps are individually tested by other surveillance requirements in their ability to transfer fuel oil from storage tank to feed tank. On the basis of the above, the staff finds the revised technical specification, as agreed to by the licensee, to be acceptable.

2.3 Revised Frequency of Diesel Generator Testing

By letter dated March 6, 1992, the licensee withdrew the proposed change to diesel generator frequency of testing. The licensee will pursue this change after the staff has approved new guidance on the subject.

2.4 Specific Gravity

The current Technical Specification (TS) 4.8.1.1.2c.1.c limits the acceptable range of diesel oil specific gravity to 0.80 - 0.99. The licensee's original calculations of the diesel fuel's heating value were based on usage of a fuel whose specific gravity fell into the middle of the acceptable range. As a consequence of the calculations, the licensee determined that combustion of a minimum specific gravity diesel fuel could result in operation of the diesels outside of the design basis of the plant. The licensee has therefore proposed increasing the minimum required specific gravity of the fuel oil from a value of 0.80 to a value of 0.85 (equivalent to decreasing the minimum acceptable American Petroleum Institute relative gravity value from 45 to 35).

Increasing the minimum specific gravity of the fuel oil imposes a more restrictive requirement on the licensee, since it will narrow the range of viscosities of diesel fuel oil arriving on site. Acceptable fuel oils will still have viscosities which are bounded by the viscosity range specified in TS 4.8.1.1.2c.1.b, and in ASTM Specification D-975, for Grade No. 2-D diesel fuel oil. A comparison with fuel oil data from the Petroleum Industry (Exxon Corp.) supports the licensee's position that the proposed change to the minimum specific gravity will result in diesel operation with a fuel of a higher heating value. This, however, will bring operation of the diesel generators back in accordance with design basis of the plant.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration and there has been no public comment on such finding (56 FR 29274 and 58 FR 19478). Accordingly, the amendment meets 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission 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, (2) such

activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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