



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 81 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By application for license amendment dated November 10, 1992, Union Electric Company (the licensee), requested changes to Technical Specifications (TS) 3/4.9.7, "Spent Fuel Storage Facility," for the Callaway Plant, Unit 1. The amendment would change TS 3.9.7 and its associated Bases to allow movement of the spent fuel pool transfer gates, weighing approximately 5200 lbs., over fuel assemblies in the spent fuel pool (SFP). At present, TS 3.9.7 prohibits the movement of loads in excess of 2250 lbs. over fuel assemblies in the SFP. The change would permit the licensee to move the gates for refueling activities, fuel handling system maintenance, and replacement of gate seals.

There are two transfer gates that must be moved during fuel handling operations, system maintenance, and seal replacement. One gate is provided to separate the fuel transfer canal from the SFP; this gate is actually between the fuel transfer tube and SFP. The other gate separates the SFP and cask loading pit. Use of these leaktight gates permits draining the fuel transfer canal, or draining of the cask loading pit in the event of such need.

The staff review of the proposed change is contained below in Section 2.0, "Evaluation," and Section 3.0, "Conclusion."

By letter dated April 16, 1993, the licensee provided clarifying information associated with TS 3.9.7 that did not change the initial proposed determination of no significant hazards consideration or affect the notice published May 12, 1993 (58 FR 28061).

2.0 EVALUATION

2.1 Heavy Loads

2.1.1 Spent Fuel Pool Bridge Crane

The licensee plans to use the 5-ton manual push-type trolley with manual chain hoist to move each SFP gate. The 5-ton trolley and hoist is part of the SFP bridge crane which has been designed to Crane Manufacturers Association of America, CMAA-70, Class 3 standards. The standards recommend using material design stresses 20% of the ultimate value, which would require a minimum load of 25 tons to cause trolley failure.

The licensee proposes to use two safety trolleys, one on each side of the main trolley. Each safety trolley has similar design characteristics, resulting in an approximate load bearing capability of 25 tons before failure for each of the three trolleys.

2.1.2 Other Lifting Devices

Prior to any lift movement, there will be two 5-ton nominal capacity slings attached to the gate. The slings will be supported from the 5-ton hoist. Two 5-ton safety slings, one from each safety trolley, will also be attached to the gate. These safety slings provide added protection prior to lifting the gate to a height of approximately one foot. Additional 5-ton safety slings, one from each safety trolley, will be attached to the gate to support transverse movement. The load will be carried by the main hoist slings. The first two safety slings are slack during the lift operation and serve only as protection in the event of a main hoist cable failure. Similarly, the latter two safety slings are slack and intended to prevent a gate drop, in the event of a hoist cable failure during transverse movement. Each sling has the capacity to lift 25 tons before it might fail.

2.1.3 Further Considerations

The licensee stated that the gate storage location for each transfer gate is approximately 6 feet from its installation location. Since the gate installation and storage locations are adjacent, the transit time the gates are suspended over spent fuel racks is expected to be extremely small.

The licensee has determined through testing and analyses that the fuel storage racks can absorb energy equivalent to a gate drop from a minimum of 15 inches above the racks without damage to fuel elements. Therefore, the licensee has established administrative controls that limit lift heights for gate movement to 12 inches above fuel racks. The licensee further stated that any items which may stick up above fuel storage racks, such as RCCA's, would be avoided.

3.0 CONCLUSION

The manual push-type trolley on the SFP bridge crane is not considered single-failure-proof. It does not have two independent parallel paths to hold the gate, in the event one of the paths fails. However, the use of additional trolleys with redundant slings serves to implement the single-failure-proof philosophy, because failure of all but one trolley or sling would still permit the load to be held.

In addition, the number of transfer gate movements is expected to be low under the circumstances envisioned by the licensee. Plant refueling activities, which occur every 1 1/2 - 2 years, would require gate movements. Seal repair and/or replacement would require gate movements every five to six years. Fuel handling system maintenance may also require some additional gate moves. The actual transit time for each gate movement should be low, in the order of no more than a few minutes during each normal evolution. In the unlikely event

of a drop on fuel storage racks, the licensee has determined through tests and analyses that a drop will not damage fuel. Therefore, the staff concludes that the proposed revision to Technical Specification 3/4.9.7 is acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding (58 FR 28061). Accordingly, this 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 this amendment.

5.0 CONCLUSION

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

Principal Contributors: N. Wagner
L. R. Wharton

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