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Carolina Power & Light Company

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Robinson File No: 13510E

Serial: RSEP/82-2083

Mr. James P. O'Reilly, Regional Administrator
United States Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W., Suite 3100
Atlanta, GA 30303

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
RESPONSE TO INSPECTION REPORT IER-82-40

Dear Mr. O'Reilly:

Carolina Power & Light Company (CP&L) has received and reviewed the subject inspection report and provides the following response.

NRC Comment

A. SEVERITY LEVEL III VIOLATION - (IER 82-40-01)

10 CFR 30.41(a) forbids a licensee to transfer its licensed material except under certain specified conditions.

10 CFR 71.5(a) requires a licensee, who transports any licensed material outside the confines of his plant or other place of use or delivers any licensed material for transport, to comply with the applicable requirements of the Department of Transportation regulations presented in 49 CFR Parts 170 through 189 insofar as such regulations relate to the packaging of byproduct, source, or special nuclear material, making and labeling of the packages, loading and storage of packages, placarding of the transportation vehicle, monitoring requirements and accident reporting.

49 CFR 173.392(c)(1) requires a consignor of low specific activity radioactive material to package the material in strong, tight packages so that there will be no leakage of radioactive material under conditions normally incident to transportation.

Contrary to the above, on November 2, 1982, the licensee transferred low specific activity radioactive waste containing licensed material under conditions not specified in 10 CFR 30.41, and delivered this material for transport outside the confines of this plant under conditions that were not in compliance with an applicable requirement of the Department of

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Transportation regulations. Specifically, the licensee consigned five 55-gallon drums, each containing several gallons of slightly radioactive liquid, for land burial by a person (Chem-Nuclear Systems, Inc.) whose license (South Carolina License No. 097) did not authorize him to accept liquid radioactive waste for burial. Moreover, two of the drums were leaking radioactive liquid upon arrival at the burial site.

CP&L Response

1. ADMISSION OR DENIAL OF THE ALLEGED VIOLATION

Carolina Power & Light Company acknowledges the alleged violation.

2. REASON FOR THE VIOLATION

Acid cleaning of H. B. Robinson's Unit 1 boiler performed in the fourth quarter of 1981 produced sludge that was stored in large tanks and ultimately transferred to 55-gallon drums. The pH was adjusted to 10-11. and the 55-gallon drums containing the waste sludge were allowed to remain onsite for approximately one year. The outside of these 55 gallon drums may have been exposed to the acid cleaning solution during the transfer process. In the third quarter of 1982, a contractor was requested to solidify the sludge. By then, the solids had settled to the bottom of the drums; which necessitated the removal of the supernate. Under the guidance of CP&L Radiation Control Technicians the contractor used Health Physics Procedure, HP-33, and Special Procedure 437. Prior solidification of evaporator bottoms and other liquid wastes was successfully handled in a similar manner. After processing, mixing, and the inspecting by attempting to drive a metal rod into the cement, the drums were considered suitable for shipping.

On November 2, 1982, 42 solidified drums were dispatched to Barnwell Waste Management Facility in Barnwell, S.C. for burial. Upon arrival at the site and after receipt inspection, H. B. Robinson was notified that two drums on a pallet appeared to be leaking. Plant personnel were dispatched immediately to the site for examination. Three additional drums were found to contain sludge in the lower third of the drums. A sample of the drum contents was obtained and transported to CP&L's Harris Energy and Environmental Center for analysis. Analyses confirmed that the sludge was the remnants of cleaning wastes from the Unit 1 boiler. It was suspected at that time, that the corrosion of the drums had occurred from the inside out. Additional samples and analyses were obtained from the remaining waste that had not been shipped off site. Metallurgical and chemical analyses indicated that the sludge remaining onsite was consistent with the sludge in the leaking drums.

Corrosion rate tests on the inside of the corroded drums indicate a very slight corrosion rate; approximately 3 mils per year. The exterior corrosion rate, however, was determined to be approximately 50-60 mils

per year. The same drum metal exposed to a five (5) percent HCL acid solution exhibited a 60 mils per year corrosion rate. This would breach the drum within approximately nine months. This time is comparable to the elapsed time between the sludge being transferred into the 55 gallon drums and the solidification of the sludge.

The above leads to the conslusion that; 1) the sludge mixture was not mixed properly with the cement and thus not solidified although attempts to drive metal rods into the drums were unsuccessful; 2) the outside of the drums apparently came into contact with a corrosive solution (comparable to the 5 percent HCL acid used during the boiler acid cleanup) during the draining of the boiler cleaning solution; and 3) inadequate inspection and process control for this special waste allowed the drums to be shipped.

3. THE CORRECTIVE STEPS WHICH HAVE BEEN TAKEN AND RESULTS ACHIEVED

Upon notification that the drums had non-solidified contents, all shipping of "unusual wastes" was immediately suspended. The solidification of evaporator bottoms and other routine wastes is continuing based upon the successful past experience over the years and a rereview of packaging and shipping procedures.

4. CORRECTIVE STEPS WHICH WILL BE TAKEN TO AVOID FURTHER VIOLATION

There have not been, nor will there be, any further shipments of "unusual wastes" until an acceptable solidification program for these wastes, including procedures, any required equipment, and process controls is implemented. With respect to the overall waste solidification program a review of existing procedures for all waste types will be performed and these procedures will be enhanced to provide a thorough process control program for all wastes. This will include batch and destructive testing, improved visual inspections for proper solidification and drum condition.

5. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

With the suspension of unusual waste shipments full compliance has been achieved. The reviews described in Item 4, which will result in an improved overall waste solidification program, will be implemented by October 31, 1983.

If you have any questions concerning this response, please contact me.

Yours very truly,

for E. E. Utley
Executive Vice President
Power Supply and
Engineering & Construction

DCW/kjr (5950C9T5)

cc: Mr. R. C. DeYoung (NRC)
Mr. G. Requa (NRC)
Mr. Steve Weise (NRC-HBR)