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October 27, 1983

D.M. Verrelli, Chief  
Project Branch 1  
Division of Project and Resident Programs  
U.S. Nuclear Regulatory Commission  
101 Marietta Street, N.W.  
Atlanta, GE 30303

Dear Mr. Verrelli,

A copy of your letter of 24 August 1983 and postmarked 30 September arrive here on 5 October 1983. On the same day a copy of the letter which had been previously sent to the College of Engineering, to the attention of the Reactor Director surfaced. It had been left with mail to be forwarded to the last and final Reactor Director. From there it had been passed on to someone who had taken on some of his other administrative responsibilities, but knew nothing about reactors, and had had no previous dealings with the Nuclear Regulatory Commission.

Violation A cites the regulations of Part 20 dealing with radiation surveys, the necessity of making surveys and the requirement of maintaining records. The specific violation is a failure to maintain records. It is not suggested that the surveys were not made. Indeed, if this were the case, numerous witnesses could be produced to testify to the extent of the surveys. The physical plant employees involved in the dismantling of the reactor are among the most severe critics of the radiation safety program, and had to be regularly assured that the material which they were handling was not radioactive. Hence, we can confidently maintain that the surveys were taken and that the results were indistinguishable from background. We are willing to concede that your interpretation of the regulations may be correct, and we should have kept a log book, noting the date, time, item, and "background", as well as the initials of the radiation safety representative doing the survey. Proceeding from the knowledge of how long it had been since the reactor had operated at all, and how little it had been operated, this appeared at the time to be a futile exercise in pencil pushing. Numerous surveys before the dismantling had established there to be little or no hazard. The method adopted was to segregate any items

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which were found to be radioactive. Except for reactor components this proved to be a null set. To the extent that this is not deemed to be a reasonable method of evaluating risks and keeping records, we admit to the violation.

Since the actions in question place two and a half years ago, and the material from the reactor structure is long since dispersed and disposed of, there are no corrective steps which can be taken to recreate these records, nor steps which can be taken to see that it does not happen again. Hence, we are at present as close to full compliance as we will ever be.

Violation B states that "0.67 microcuries of low energy beta emitting radioactive material contained in approximately 5 gallons of demineralizer beads was erroneously disposed of as clean material by transfer to an unauthorized recipient." We do not feel that this is accurate. "0.67 microcuries of low energy beta emitting radioactive material" is essentially an incomplete description; it must be 0.67 microcuries of one or more specific radionuclides. Considering the tests which were run on the samples, there are very few possibilities. The lower energy channel for the beta counts was set at 0.5 keV to 9.0 keV and the upper window at 25 keV to 1700 keV. Finding activity in the lower channel and not in the upper channel, nor in alpha or gamma counts leaves tritium virtually the only possibility. Although tritium is ubiquitous in a reactor environment, most other samples had very few counts in the low energy beta channel. One would tend to attribute this low activity to the facility with which tritium diffuses and participates in isotopic exchange interactions. We saw at the time, and see now no reason, to presume that tritium will be concentrated by an ion exchange resin. On the other hand, one might well expect chemiluminescence to take place in the presence of various adsorbed metals. This was the conclusion of the tech who took the date, and we continue to believe it to be a reliable conclusion. Hence, we do not admit to a violation.

Since you may disagree, and the violation centers around the alleged transfer of licensed materials to an unauthorized, we have a further point, which is more in the nature of a question than an argument. We are not regularly engaged in the business of transferring radioactive materials to persons other than those with specific licenses, and are not certain of the applicability of 10 CFR 30.14 and 30.18 to the recipient of the alleged 0.67 microCuries of radioactive material. That is, if one were to transfer this activity of tritium, or virtually any other radionuclide, would not just about anyone have a General License to possess it?

Not mentioned in the text of your letter, but included in the appended report are details of a paint chip containing statistically significant activities of U-235 and U-238 (between one and two nanoCuries per gram each for chips having a total mass of aprox. five grams).

We have a shipment of dry solid radioactive waste scheduled to be buried at the disposal site operated by Chem Nuclear, Inc. at Barnwell, South Carolina on 14 December 1983. Chem Nuclear is willing to accept the paint chips as part of this shipment, and it is our intention to dispose of them in this matter.

Sincerly,

*William E. Collins*

William E. Collins, Ph.D.

Vice President for Academic Affairs

*Stephen T. Slack*

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Radiation Safety Officer

Sis/tds