

**DUKE POWER COMPANY**

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CHARLOTTE, N.C. 28242

**HAL B. TUCKER**

VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
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85 MAR 1985 9:59  
February 22, 1985

Dr. J. Nelson Grace, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

Subject: Oconee Nuclear Station  
IE Inspection Report  
50-269/84-33  
50-270/84-30  
50-287/84-34

Dear Sir:

In response to your letter dated January 23, 1985 which transmitted the subject Inspection Report, the attached response to the cited items of non-compliance is provided.

Very truly yours,

*H.B. Tucker / HBT*

Hal B. Tucker

SGG:slb

Attachment

cc: Mr. J. C. Bryant  
NRC Resident Inspector  
Oconee Nuclear Station

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PDR ADOCK 05000269  
Q PDR

IE01

### Violation 1

10 CFR 20.301 forbids a licensee to dispose of licensed material as waste except (a) by transfer to an authorized recipient as provided in the regulations in Parts 30, 40, 60, 61, 70, or 72 of this chapter, whichever may be applicable, (b) as authorized pursuant to 10 CFR 20.302 or 10 CFR 61, or, (c) as provided in 10 CFR 20.303, applicable to the disposal of licensed material by release into sanitary sewage systems, or in 10 CFR 20.306 for disposal of specific wastes, or in 10 CFR 20.106 (Radioactivity in effluents to unrestricted areas).

Contrary to the above, from September 1981 to June 1984, 18,635 gallons of slightly contaminated waste oil containing approximately 13.5 microcuries of Cs-137 and 1.18 microcuries of Cr-51 was disposed of by transfer to a fossil fueled power plant to be burned.

This is a Severity Level IV violation (Supplement IV).

### Response

1) Admission or denial of the alleged violation:

This violation is denied by Duke Power Company for the reasons given below.

2) Reasons for the denial of the alleged violation:

Oil from the secondary system which would not normally be considered contaminated, was surveyed and, if less than exempt quantities (10 CFR 30.18) were measured, the oil was shipped to Lee Steam Station, a fossil fuel steam plant for disposal by burning. The oil was not burned at Lee without additional regulatory approval. Duke Power Company submitted to the South Carolina Department of Health and Environmental Control (DHEC) a "Spent Oil Management Program for Duke's South Carolina Facilities" which describes the burning of oil containing exempt quantities of radioactivity at Lee. This Program was approved originally in 1980 by the State of South Carolina in a letter dated October 20, 1980, and has been reviewed annually since then. South Carolina DHEC is the agency responsible for implementing 10 CFR 20 in South Carolina under the agreement states program (10 CFR 150). Duke Power Company did not violate 10 CFR 20.301, 10 CFR 30.302, and 10 CFR 20.303 by burning oil at Lee.

Duke's response to IE Information Notice No. 83-05, which stated that a license application had to be initiated for any method of disposing of radioactive material which was not described in the regulations, did not question the disposal of contaminated waste oil which was being shipped to Lee for burning because:

- (1) The criteria of 10 CFR 30.18 were used to ship the waste oil to Lee, and
- (2) burning of oil at Lee was approved by South Carolina DHEC.

Use of 10 CFR 30.18 to ship the waste oil to Lee was questioned as the result of a letter from NRC Region II dated March 20, 1984; Region II clarification of 10 CFR 30.18 would not allow it to be used for disposal purposes so shipments of slightly contaminated oil to Lee were stopped and NRC Region II notified of the incident by a letter dated October 24, 1984.

## Violation 2

10 CFR 20.203(d) requires that each airborne radioactivity area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: "Caution - Airborne Radioactivity Area". "Airborne Radioactivity Area" is defined as any room enclosure, or operating area in which airborne radioactive materials composed wholly or partly of licensed material exist in concentrations in excess of the amounts specified in Appendix B, Table I, Column I of 10 CFR 20, or when in any of the areas listed above, airborne radioactive material, when averaged over the number of hours in any week during which the individuals are in the area, exceeds 25 percent of the amounts specified in Appendix B, Table I, Column I of 10 CFR 20.

Contrary to the above, on October 1, 1984, an airborne radioactivity area of Xe-133 and Xe-135 at concentrations of 2.7 and 4.6 times the concentrations specified in 10 CFR 20 Appendix B, Table I, Column I, respectively, were measured in the Unit 2 auxiliary building corridor outside the gas decay tank room with personnel present in the area and the area was not posted with signs indicating the airborne radioactivity area.

This is a Severity Level V violation (Supplement IV).

This violation applies to Unit 2.

## Response

### 1) Admission or denial of the alleged violation:

This violation is denied by Duke Power Company for the reasons given below; however, in response to the inspectors concern, Oconee has initiated a program to post areas where noble gases are the only identified materials as "Airborne Radioactivity Area - Noble Gas Only". Respiratory protection will not be required due to its ineffectiveness. Noble gas cloud characteristics (dose rate, etc...) will not be included on the signs due to the transient conditions of noble gases in station operating areas. However, this posting program is considered a temporary measure and will be eliminated upon favorable resolution of this violation.

### 2) Reasons for denial of the alleged violation:

It is Duke Power's interpretation that the regulatory philosophy for airborne noble gases and radionuclides with half-lives less than 2 hours allows exposure to these radioisotopes to be treated as external doses. 10 CFR 20.103, footnote 2, states:

"... For radioactive materials designated "Sub" in the "Isotope" column of the table, the concentration value specified is based upon exposure to the material as an external radiation source. Individual exposures to these materials may be accounted for as part of the limitation on individual dose in 20.101. These nuclides shall be subject to the precautionary procedures required by 10.103(b)(1)."

Noble gases are listed in 10 CFR 20, Appendix B as "Sub" materials. Further, shortlived isotopes ( $T_{1/2} \leq 2$  hrs., notably Rb-88) are not listed specifically to Appendix B; a generic MPC value is listed as a "submersion" dose MPC. International Commission on Radiation Protection Publication 30 supports this approach as technically sound. ICRP30, part 1, paragraph 8.2.3 states:

"Therefore, when applying the system of dose limitation described in Chapter 2, it is clear that, for exposure by submersion in radioisotopes of the noble gases, external irradiation will be of such overriding importance that it alone need be considered. Thus, in this report dose equivalents from absorbed gas and gas contained in the lung have been disregarded."

Further, paragraph 8.2.3.1 states:

"If the daughter radionuclide is not an inert radioactive gas, it can be shown that in practice dose equivalents from daughters produced from their parent absorbed in body tissues will usually be small compared with the external dose from parent and daughter outside the body. In this report dose equivalents from the daughters produced from their parent in body tissues have been disregarded."

The doses associated with these materials are subject to the controls in 10 CFR 20, paragraph 20.101. Additionally, these nuclides are subject to the precautionary (ALARA) procedures of paragraph 20.103(b)(1):

"(b)(1) The licensee shall, as a precautionary procedure, use process or other engineering controls, to the extent practicable, to limit concentrations of radioactive materials in air to levels below those which delimit an airborne radioactivity area as defined in 20.203(d)(1)(ii)."

The definition referred to here (20.203(d)(1)(ii)) is:

"(ii) any room, enclosure, or operating area in which airborne radioactive material composed wholly or partly of licensed material exists in concentrations which, averaged over the number of hours in any week during which individuals are in the area, exceed 25 percent of the amounts specified in Appendix B Table I, Column 1 of this part."

The external dose associated with these isotopes should be measured and controlled like all other external hazards, and the concentration of these isotopes should be reduced to an ALARA value ( $\leq 25\%$  MPC). For submersion MPC value, this 0.25 MPC corresponds to roughly 300 mrem per quarter below which no personnel monitoring requirements exist.

Normal respiratory protective measures are not effective in reducing doses from this material. Posting an area where this material is present as an Airborne Radioactive Material Area would imply that the area be controlled as such by MPC-hour limitations, respiratory protective equipment use and bioassay confirmatory measurements. These controls are not effective in light of the far greater hazard posed by external exposure to these nuclides. Without the need for effective internal dose control, a significant increase in protection offered to the worker is not realized by merely posting these areas as airborne areas.