Duke Power Company
Catawba Nuclear Station
P.O. Box 256
Clover, SC 29710

(803)831-3000

DUKE POWER

December 12, 1991

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414
NRC Inspection Report 413, 414/91-18
Violations 413/91-01 and 413/91-03
Reply to a Notice of Violation

Gentlemen:

Enclosed is the response to the Notice of Violation issued November 12, 1991 by William E. Cline concerning violations of TS 6.11 and violation of 10 CFR 20.201 (b).

Very truly yours,

M. S. Tuckman

M. S. Tuckman
Site Vice-President

KEN/91-18.VIO

Attachment

IE06
1/1

Duke Power Company
Reply To A Notice Of Violation
413,414/91-18-01

Technical Specification (TS) 6.11 requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR 30 and to be approved, maintained, and adhered to for all operations involving personnel radiation exposure.

10 CFR 20.103(c)(2) requires, in part, that licensees maintain and implement a respiratory protection program that includes written procedures regarding selection, fitting, and maintenance of respirators.

10 CFR 20, Appendix A, Footnote (d) requires adequate air of the quality and quantity required in accordance with NISOH/MSHA certification described in 30 CFR Part 11 to be provided to atmospheric supplying respirators.

Industrial Hygiene Safety procedure S-IH-008, Procedure for the Collection of Breathing Air Samples and Calibration of VB System Carbon Monoxide Monitors, Revision (Rev.) 0, provides guidance for quarterly sampling of the compressed breathing air systems.

Health Physics procedure HP/0/B/1000/04, Preparation of Radiation Work Permits (RWPs) and Standing Radiation Work Permits (SRWPs), Rev. 16, dated March 20, 1991, details limits, precautions, issuance, revisions, and termination of RWPs and SRWPs utilized for entry into Radiation Control Areas (RCAs) and Radiation Control Zones (RCZs) that require the use of dosimetry.

Contrary to the above, the licensee failed to follow/have adequate respiratory protection procedures for the following examples:

A. From January 1, 1991 through August 23, 1991, the licensee failed to have an approved procedure for testing and certifying Grade D air quality for compressors utilized to supply the station breathing air (VB) system and the self-contained breathing apparatus (SCBA) equipment.

B. Licensee procedure (HP/0/B/1000/04) failed to provide guidance for use of respiratory protective equipment by radiation protection (RP) personnel conducting pre-job surveys of contaminated systems, equipment, or areas.

These examples are considered together as a Severity Level IV violation (Supplement IV).

Duke Power Company
Reply To A Notice Of Violation
413,414/91-18-01

RESPONSE

1. Admission or Denial of the Violation:

Duke Power Company admits the violation.

2. Reason for Violation:

A. At the request of Radiation Protection, on January 1, 1990, the testing and certifying of Grade D breathing air was taken over by the Safety and Health Section. At the time of the transfer of responsibility, TS 6.11 was not relayed as a regulatory commitment to work within for requiring an approved procedure. In Safety's opinion, an applicable procedure for the testing and certifying of Grade D breathing air was not available and would be needed. A generic procedure for the collection of breathing air samples from the Industrial Health Laboratory had been used and would be the starting point for development of the Safety and Health Section's procedure. The generic procedure was used, revised, and went unapproved as it was gradually refined on each subsequent quarterly air sample. This approach was taken so that the procedure would be initially submitted in a final form.

B. The procedure used to write the RWP for the work did not provide sufficient guidance to require respiratory protection for the RP technician performing the initial survey of the internal lift rig. The decision to perform the initial survey without respiratory protection was based upon a previous evolution where no airborne radioactivity or personnel contamination events were encountered. The RP supervisor responsible for the work felt confident that the RP technician was capable of performing the initial survey without a respirator, without creating an airborne radioactivity area or contaminating himself.

3. Corrective Actions Taken and Results Achieved:

A. Procedure PT/0/B/4400/007, Collection of Breathing Air Samples and Calibration of Carbon Monoxide Monitors, was completed and approved on November 12, 1991.

B. The RP supervisor noted the incident in his log and committed to requiring respiratory protection for initial survey of the lift rig for Unit 2EOC4 refueling outage. This was discussed and documented in the minutes of the post outage job critique for the work. The RWP for this work is currently active and requires a respirator for initial survey. In addition, a training package describing this incident and the planned procedure changes has been made required reading for the Surveillance and Control (S&C) RP personnel during this outage.

4. Corrective Actions to be Taken to Avoid Further Violations:

A. No additional actions are planned.

B. Procedure HP/0/B/1000/04 will be revised to require consideration of the use of respiratory protective equipment for all light work in areas where the contamination levels generally exceed 100,000 dpm/100 cm^2 (loose/dry). The procedure is being further enhanced by specifically including RP surveys as an example of light work. The procedural changes describes will be approved by December 31, 1991. Additionally, the revised procedure will require respiratory protection/ engineering control for RP personnel performing surveys when contamination levels are known (or anticipated) to exceed 100,000 dpm/100cm^2 and the survey itself is likely to create airborne radioactivity in the breathing zone (ex. smearing dried boron or highly contaminated overhead surfaces). These procedural improvements will reduce the flexibility which allowed RP personnel to perform surveys in highly contaminated areas with less restrictive respiratory protection than other station personnel.

5. Date of Full Compliance:

Duke Power is now in full compliance.

Duke Power Company
Reply To A Notice Of Violation
413,414/91-18-03

10CFR 20.201(b) requires that each licensee make such surveys as may be necessary to comply with the requirements of Part 20 and are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present. As defined in 10 CFR 20.201 (a), "survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions.

10 CFR 20.401(a) requires each licensee to maintain records in accordance with the instructions contained in NRC Form 5, showing the radiation exposures of all individuals for whom personnel monitoring is required under 10 CFR 20.202. NRC Form 5, Current Occupational External Radiation Exposure, dated October, 1981 requires skin exposures to be assess through a tissue equivalent adsorber thickness of 7 milligrams per square centimeter (mg/cm^2).

Contrary to the above, the licensee failed to evaluate workers' exposures to the skin of the body properly in that from January 1, 1991 through August 23, 1991, exposures to workers from concentrations of Xenon-122 (Xe-133) gas were evaluated through a tissue equivalent adsorber thickness of approximately 15 mg/cm^2 rather than the required 7 mg/cm^2.

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

RESPONSE

1. Admission or Denial of the Violation:

   Duke Power Company admits the violation.

2. Reason for Violation:

   Use of a correction factor to account for attenuation provided the density thickness of a poly bag used to cover the survey instrument was not adequately addressed in the Duke Power Company (DPC) System Health Physics Manual Procedural Guide II-6, External Exposure to Airborne Radionuclides (Noble Gases and Short-Lived Radionuclides).

3. Corrective Actions Taken and Results Achieved:

   Effective August 27, 1991, use of a beta survey instrument and stay time to assign permanent beta dose attributable to submersion in a noble gas atmosphere without correcting the dose rate for attenuation by the bag was terminated. The current method used to

assign beta dose is to collect a gas sample for analysis. Beta dose is assigned by converting the beta Xe-133 equivalent activity to a dose rate and then calculating the dose by multiplying the dose rate by the stay time. Procedure HP/0/B/1000/24, Responsibilities and Duties of a Dose Controller, allowed this option; therefore, the change was made immediately.

Procedure HP/0/B/1000/24 was revised to delete the use of a beta survey instrument dose rate and stay time for permanent beta skin dose assignment. The revision was approved on October 19, 1991.

All calculated permanent beta dose assignments due to submersion in a noble gas atmosphere from September, 1987 (the time the practice began) to August 23, 1991 (the date the practice ended) were reviewed. These beta doses were underestimated by a factor of approximately 2 based on a bag density of 8 mg/cm^2 and a Xe-133 half value layer of 7.5 mg/cm^2. A beta dose of 200 mrem was established as the cutoff dose above which a correction should be made to a person's record. The 200 mrem is based on Procedure HP/0/B/1000/04, Preparation of Radiation Work Permits (RWPs) and Standing Radiation Work Permits (SRWPs), Enclosure 5.2, guidelines for relocating dosimetry or issuing multiple dosimetry. Per the established limits, two persons' dose records were corrected.

In addition, to ensure that a quarterly skin dose limit was not exceeded, a worker's quarterly noble gas beta dose assignment was recalculated (doubled) and added to that quarter's gamma and neutron dose to give the total corrected quarterly skin dose. This was done for all workers and all quarters from September, 1987 through the second quarter of 1991 and for portions of the third quarter (through August 27) of 1991. No DPC worker exceeded the DPC administrative skin dose limit of 6 rem for any quarter.

3. Corrective Actions To Be Taken To Avoid Further Violations:

No additional actions are planned.

4. Date of Full Compliance:

Duke Power Company is now is full compliance.