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September 14, 1990

Docket No. 70-1100
License No. SNM-1067

Dr. Malcolm R. Knapp, Director
Facilities Radiological Safety
and Safeguards Branch
Division of Radiation Safety
and Safeguards
U. S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406

Subject: Response to Notice of Violation
(Inspection Report No. 70-1100/90-06)

Reference: Letter, M. R. Knapp (NRC) to C. R. Waterman
(C-E), dated August 1, 1990

Dear Dr. Knapp:

The Reference requested Combustion Engineering's response to Items A and C of NRC Inspection Report No. 70-1100/90-06. This report documented the results of a special inspection that was conducted to evaluate additional information we provided in response to NRC Inspection Report No. 70-1100/90-03. Discussion with the Region I Division Project Manager confirmed that our response by September 14, 1990 would be timely. Accordingly, our response to Items A and C of NRC Inspection Report No. 70-1100/90-06 is provided in Enclosure I.

If I can be of further assistance in this matter, please do not hesitate to contact me or Mr. J. F. Conant at (203)285-5002.

Very truly yours,

COMBUSTION ENGINEERING, INC.

for R. E. Vaughan
Plant Manager

REV:pim

cc: J. Roth (NRC Region I)
S. Soong (NRC)

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ENCLOSURE I

RESPONSE TO NOTICE OF VIOLATION

(NRC INSPECTION REPORT NO. 70-1100/90-06)

Response to Notice of Violation
(Inspection Report No. 70-1100/90-06)

Violation A

Violation A of NRC Inspection No. 70-1100/90-03 involved the licensee's alleged failure to complete evaluations to:

- Show that adequate surveys were conducted in the Pellet Shop stack and load area to prove compliance with the dose limits of 10 CFR 20.101(a) and (b);
- Determine the adequacy of beta dose measurements to the skin of the whole body, in this case, the face, and;
- Determine the adequacy of beta shielding of safety glasses used in the Pellet Shop to ensure compliance with whole body dose limits specified in 10 CFR 20.101(a) or (b).

In response to this violation, the licensee contended that the violation was unwarranted based on an evaluation conducted by the licensee from February 1985 through June 1985. The evaluation results were reviewed by the NRC in Inspection No. 87-01. The inspector concluded that extremity exposures were within regulatory limits.

The inspectors reviewed the licensee's 1985 evaluation and found:

- it did not include the group of workers who, historically, have the highest radiation exposures (the stack and load workers), on whom the violation was based;
- it did not correlate the exposure of the workers studied to the stack and load workers;
- it did not clearly describe the conditions (i.e., the status of equipment, shielding, etc.) under which the evaluation was performed, thus preventing correlation with current conditions;
- it did not contain sufficient information to determine the correction factors that result from wearing safety glasses or from wearing dosimeters beneath protective clothing (the current practice).

Accordingly, the inspectors concluded that the 1985 study did not constitute an adequate evaluation of the conditions stated in the violation. The violation stands as cited.

Relevant to this violation, the inspectors observed stack and load workers improperly wearing their personnel dosimeter by hanging it from their waist. When worn in this manner, the dosimeter was

shielded from radiation from the pellets on top of the table. During the exit meeting on June 14, 1990, the inspectors stated that the licensee needs to evaluate the adequacy of the positioning of personnel dosimetry. This item will be reviewed during a future inspection (1100/90-06-01).

RESPONSE

As stated in our letter of May 11, 1990, Combustion Engineering initiated additional surveys and a beta radiation study at the fuel pellet stacking table on April 13, 1990. The study, using Thermoluminescent Dosimeters (TLD) in a fixed position from the fuel pellet stacking surface, was designed to gather information about the attenuation of beta radiation by protective clothing garments and safety eye glasses worn by workers.

Results of the study indicate that exposure to the worker's face may be 10% higher than indicated by the personal TLD worn by the workers under their protective clothing garments. The resultant skin dose including dose to the skin of the face is well within NRC limits specified by 10CRF20.101.

With respect to the use of safety glasses in meeting whole body dose limits as specified by 10CFR20.101, results of the study indicate that the use of standard safety glasses designed to ANSI specification Z87.1, 1989 is essentially 100% effective in shielding beta radiation when worn by the average worker at the stacking table.

A report on this study is presently under preparation.

In parallel with this study, we conducted some tests using an air ionization chamber and polycarbonate plastics to evaluate the benefits and practicality of a permanently installed beta shield. In the interest of maintaining exposures As Low As Reasonably Achievable, ALARA, it was decided to install a "salad bar" type polycarbonate beta shield at the pellet stacking table. Evaluations performed after installation indicate that the beta shield is essentially 100% effective.

Based upon the above and results of routine radiation surveys, we believe we are in full compliance with 10CFR20.101.

Violation C

Violation C of NRC Inspection No. 70-1100/90-03 involved the licensee's alleged failure to issue "special" dosimeters to Radiation Protection Technicians (RPTs) in accordance with Radiation Protection Instruction (RPI)-205. In its response, the licensee contends that the violation is unwarranted because, until December 1989, "special" (i.e., neutron) dosimeters had been issued to the RPTs monthly for almost eleven years, and that no neutron exposure was ever assigned to any individual who wore the neutron dosimeters. The licensee notes that these exposure results prompted a proposal to delete the requirements from RPI-205 as well as from RPI-206, which contained a similar requirement for certain other workers to wear neutron dosimeters. In December 1989, the licensee initiated Procedure Change Requests (PCR) for both RPI-205 and RPI-206. The PCR for RPI-206 subsequently was approved and the requirement deleted from that procedure. However, as a result of administrative oversight, the PCR for RPI-205 apparently was lost, so the change was never approved and implemented. The PCR has now been approved and RPI-205 has now been so modified. Further, the licensee notes that, on December 12, 1989, the Program Manager, Radiological and Industrial Safety, issued Program Control Document PR-6, External Exposure Control Program, that sets the requirements for that program. However, "special" neutron dosimeters are not discussed in this document.

In Inspection Report No. 70-1100/90-03, the NRC staff noted that PR-6 does not address what types of workers are required to wear neutron dosimeters. At the time of the inspection (February 26-March 2, 1990), RPI-205 required that they be issued to RPTs, and the inspector observed that this was not being done. At that time, the RP Supervisor informed the inspector that this was an oversight caused by the incorrect type of dosimeter being ordered for the RPTs from the dosimeter contractor. The NRC staff is concerned that, after the licensee's efforts to establish the Configuration Management System and various tracking systems that a PCR could so easily be misplaced and its loss not recognized over two months later. Despite the licensee's intentions, or the explanation for the oversight, the implementing procedure in place at the time of the inspection contained a clear requirement that was not being met. The violation stands as cited.

RESPONSE

Although caused by an administrative oversight, special neutron dosimetry was indeed not issued to Radiation Protection Technicians as required by the version of Radiological Protection Instruction (RPI)-205 in effect at the time. Since the special neutron dosimetry was not required, RPI-205 has since been modified to delete the special dosimetry requirement so that it is now consistent with other related facility documentation. That is, Radiological Protection Technicians are no longer required to wear special neutron dosimetry. Combustion Engineering is now in compliance with facility procedural requirements concerning dosimetry for Radiological Protection Technicians.

As previously pointed out, the root cause of this violation was a failure to follow the established procedure revision process. To correct this situation, the NFM Plant Manager has established a temporary Procedure Review Committee to review comments and changes to NFM Program documents. As a minimum, documents within the scope of Committee review include Radiological Protection Instructions, Criticality Safety Instructions, Emergency Plan Implementing Procedures, Industrial Safety Instructions, and selected Administrative Procedures and Guidelines.

The committee consists of the NFM Plant Manager, Operations Consultant, Program Manager of Radiological Protect. and Industrial Safety, and the Cognizant Document "Owner' as established by Administrative Guideline AG-1, Organization and Responsibilities).

The Committee will meet as necessary to address document review comments until the Plant Manager determines that the established procedure revision process is working as intended.