



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

July 20, 2000

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SUBJECT: ALLEGATION NO. RIII-00-A-0055

This is in reference to our letter dated March 31, 2000, which indicated that we would initiate action to review your concern related to activities at the ABB/Combustion Engineering facility located in Festus, Missouri. You were concerned about receiving an intake of radioactive material due to poor contamination control practices that may have resulted in a dose in excess of regulatory limits.

The NRC has completed its review of the concern that your attorney brought to our attention on March 2, 2000. The enclosure to this letter describes your concern and how it was resolved. Based on the results of our review, we did not substantiate that you received an intake as a result of poor contamination control practices, or that the exposure exceeded regulatory limits. Although you received dose due to an intake of radioactive material while working at the facility, the dose you received was within regulatory limits. Further, the licensee instituted proper contamination controls and monitoring of internal exposures. We therefore did not identify violations of NRC requirements or safety concerns.

Thank you for informing us of your concern through your attorney. We take our safety responsibilities to the public very seriously and appreciate your willingness to bring this issue to our attention. Based on the results of our review, we consider the issue closed.

If you disagree with our conclusion or wish to provide additional information, please contact the Region III Office Allegation Coordinators by writing to the U.S. Nuclear Regulatory Commission, Region III, at 801 Warrenville Road, Suite 255, Lisle, Illinois 60532-4351, or calling the NRC Region III switchboard toll free at (800) 522-3025 or the NRC Safety Hotline at (800) 695-7403. Your cooperation is appreciated.

Sincerely,

*Cynthia D. Pederson*  
Cynthia D. Pederson, Director  
Division of Nuclear Materials Safety

Enclosure: As stated

cc w/enclosure: 1. AMS File No. RIII-00-A-0055

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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Act, exemptions 7C  
FOIA-2004-0234

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ENCLOSURE

RIII-00-A-0055

Concern:

You may have received an exposure involving uranium oxide as a result of poor contamination control practices, and this may have resulted in a dose in excess of the regulatory limits.

NRC Conclusion for Concern:

The NRC conducted an inspection into the concern. The inspector interviewed individuals working in potentially contaminated areas, observed the use of lapel air sampling equipment, evaluated the use of the equipment, and reviewed your bioassay data. The inspector also reviewed and observed the licensee's procedures for contamination control. Observed individuals demonstrated proper contamination control procedures including proper use of coveralls, gloves, booties, and use of radiation monitoring equipment. The inspector did not observe any deviations from contamination control procedures.

To monitor for internal exposures, the licensee used lapel air samplers. Air samplers were clipped to the workers' lapel on the outside of the smock or coveralls and properly positioned in the breathing zone. The inspector randomly questioned numerous operations staff in the ERBIA and Pellet Plants as to whether the assigned lapel air samplers were functioning correctly (i.e., turned on). All lapel samplers reviewed by the inspector were operating properly at the time of this inspection, used properly by the staff, and they were calibrated.

The inspector reviewed your lapel air sampling records and bioassay results and noted that, during the period from April 15 to April 22, 1999, your lapel sampler indicated an internal exposure of 525.28 derived air concentration-hours (DAC-hours). Although below the NRC limit of 2000 DAC-hours, this number was in excess of the licensee's investigation level for results, and the licensee conducted an investigation into the exposure.

On April 19, 20, 21, 22 and 23, 1999, you submitted fecal samples for bioassay to determine internal dose (i.e., committed effective dose [CED]). These bioassay samples were analyzed on May 29, 1999, by the licensee's independent contractor (Teledyne Brown Environmental Services) and the results indicated that the CED was 10 millirem which equates to 4 DAC-hours. This value is far below the NRC's dose limit of 5,000 millirem per year. Even if the initial DAC-hour value was used to determine your dose, the value would have been 1,314 millirem, which is also below the NRC's dose limit. Since your bioassay result indicated that your intake of uranium oxide did not correlate to the concentration of uranium oxide detected on the lapel sampler, the licensee concluded that the cause of the high lapel air sample was cross contamination.

It appears that the 4,477 measurement that your lawyer referenced during a March 2, 2000, conversation with NRC staff refers to the number of counts detected when the amount of radioactivity on the sampler was measured; rather than DAC-hours. When reporting your exposure, the licensee converts this number of counts detected to a DAC-hour reading which accounts for the concentration of radioactive material in the air you breathed and the amount of time you worked in the area. Therefore, we concluded that the DAC-hour reading of 525.28 reported by the licensee was appropriate.

ENCLOSURE

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In addition, we concluded that the licensee implemented an adequate program to control contamination and monitor uranium airborne concentrations for the breathing zone of personnel, including lapel air samplers and fixed general-area samplers. We were unable to determine the cause for the cross-contamination of your lapel air sampler. If poor contamination control had occurred at the time, these practices have been corrected and were not observed at the time of our inspection. Lastly, we concluded that even if the lapel air sample results were correct rather than cross-contaminated, you would have received a CED below the limits specified in 10 CFR 20.1201. During 1999, no worker or contractor received an intake of airborne uranium in excess of the limits specified in 10 CFR 20. Therefore, while the portion of the concern that you may have received an exposure involving uranium oxide was substantiated, we could not substantiate whether the exposure was a result of poor contamination controls nor could we substantiate that the dose received was in excess of regulatory limits.