



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION III  
801 WARRENVILLE ROAD  
LISLE, ILLINOIS 60532-4351

R3/C1-14

July 16, 1999

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MEMORANDUM TO: Brent Clayton, Enforcement Investigations Officer, EICS  
FROM:   
Cynthia D. Pederson, Director, DNMS  
SUBJECT: ALLEGATION FOLLOW-UP: ABB COMBUSTION ENGINEERING  
NUCLEAR POWER, INC. (RIII-99-A-0029) (AITS NO. M99-4096)

As requested by your memorandum dated May 24, 1999, the Fuel Cycle Branch (FCB) has reviewed the attached licensee response letter dated May 19, 1999, to NRC letter dated April 12, 1999, referencing AMS 99-A-0029. An allegation review board (ARB) was held on April 7, 1999. The ARB recommended sending the following concerns to the licensee for review and response.

Background

An independent review of the following four concerns was performed by an individual from the licensee's Connecticut office whose reporting chain is independent of fuel operations. The investigation was performed under the direction of the Vice President and General Counsel for Nuclear Power. The licensee's investigation included direct observation of facility operations and interviews of approximately fourteen managers, supervisors, technicians, and operators.

Concern 1

"Plant staff might have taken lab crucibles home from the plant. The plant staff would clean up the crucibles and take them (the crucibles) home."

Licensee Review

The licensee did not substantiate this concern. The licensee did not identify any instance where crucibles were taken home from the plant, nor did they identify any reason why they would be. In November 1998, six crucibles were reported missing from the laboratory. During the licensee's investigation, an individual admitted taking and hiding five of the crucibles after initially denying any involvement. He indicated that the crucibles never left the site and that he took them to test security. The individual returned five of the six crucibles. The sixth crucible was not recovered after an extensive search. This individual was terminated for unauthorized removal of the crucibles. By procedure, any crucibles which are sent offsite are required to be cleaned and surveyed to ensure there is no contamination above release limits.

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NRC Analysis

In regards to the unauthorized removal of crucibles, the incident appears to be the act of an employee in a non-managerial position. In addition, the licensee took comprehensive action to investigate and address the issue, including termination of the involved employee. The licensee has procedural controls for preventing the release of contaminated equipment, and five of six missing crucibles were recovered. The likelihood of discovering the sixth crucible at this date is considered to be very small and there is no conclusive evidence that the crucible actually left the site. Based on these considerations, the Division recommends that no further action be taken.

Concern 2

"The decontamination area has contaminated trash in the clean trash area and this contaminated trash was not being surveyed prior to disposal to the dump."

Licensee Review

The licensee did not substantiate this concern. The licensee verified that items that can be decontaminated are cleaned and surveyed for residual radioactivity. Items that cannot be readily decontaminated in the Hematite facility are packaged for either further processing by a licensed waste processor or disposed of as radioactive waste at a licensed disposal facility. Items are free-released only when the items meet the release criteria specified by the license (SNM-33) and by procedure.

NRC Analysis

The licensee's response is adequate. During an NRC inspection the week of April 26, 1999, NRC inspectors conducted a contamination survey in one of the clean dumpsters and no contaminated items were found. Based on inspection results, the Division recommends that no further action be taken.

Concern 3

"The laundry facility is in the clean area of the plant. Dirty laundry was surveyed prior to washing and identified as contaminated and then was surveyed after washing. It was still as radiologically hot as it was before washing - one time they replaced all the coveralls but that didn't last long."

Licensee Review

The licensee did substantiate this concern. The laundry process primarily removes loose uranium from the material, however, some residual uranium remains in the fabric weave and is detected using radiation survey instruments. Informational type radiation surveys have been performed prior to washing laundry and after washing. Survey results prior to washing and after washing have periodically been equivalent, indicating the contamination is fixed and not

removable. Occasionally, protective clothing is replaced, and there have been times when a significant fraction of the clothing population has been replaced. The replacement is typically on an as-needed basis.

#### NRC Analysis

As noted above, fixed contamination is present in some protective clothing (primarily shoe covers, lab coats, and coveralls). The clothing is not allowed to leave the controlled area of the site (the laundry facility is located within the controlled area) and is disposed of as contaminated waste when it is replaced. Although contaminated, the contamination is primarily uranium (primarily alpha and beta radiation) which does not generally penetrate undergarments, shoes, clothing, etc., worn under the protective clothing. As such, the dose to employees or visitors wearing the protecting clothing is negligible. In addition, radiation workers and visitors entering the controlled area of the site are required to wear film badges to monitor the dose received by the individual. Any significant dose from the protective clothing would presumably be measured by the film badge of the individual routinely wearing the clothing. The NRC routinely inspects and reviews the personnel doses received by employees at the site.

During an NRC inspection the week of April 26, 1999, contamination surveys of the laundry facility were performed. All the surveys yielded results below 18 disintegrations per minute per 100 square centimeters (dpm/100cm<sup>2</sup>) of removable activity which were well below the clear area administrative limit of 200 dpm/100cm<sup>2</sup>. The laundry room was also noted to be on a routine survey program to ensure clear area limits were not exceeded.

As a result of these considerations, the licensee and Division staff concluded that the concern was substantiated, but no violations of NRC requirements or risks to the public health and safety resulted from the current practice for laundering protective clothing.

#### Concern 4

"People eat, drink, and smoke on the contaminated side. This practice was against company policy."

#### Licensee Review

The licensee did substantiate this concern. Operations policy does restrict eating, drinking, and smoking in the contamination control areas of the plant with the following exceptions. Employees are allowed to chew gum, use cough drops or candy providing that they are put in the mouth prior to entering the contamination control area. There are also water drinking fountains within the contamination control area for plant use. On occasion, drinking containers and smoking have occurred on the contaminated side of the change line. These are infractions of plant policy and if caught, the individuals are disciplined. The licensee continues to exercise supervisory oversight in the change rooms and appropriately deal with infractions of policy.

NRC Analysis

Although infractions of plant policy have occurred, there are no restrictions in the license on eating or drinking as it pertains to the drinking fountains in the contamination control area as previously explained. Thus, no violations of NRC requirements have occurred. However, the license requires employees to follow plant procedures. Procedure "Operation Sheet," dated February 18, 1987, states, in part, that smoking and eating is permitted only in designated areas. As the controlled area is not designated as a smoking or eating (drinking containers) area, a violation of NRC requirements was identified by the licensee related to smoking and drinking and will be dispositioned during the routine inspection scheduled for September 20, 1999. The inspectors did not witness any instances of smoking or eating (drinking containers) in the contaminated areas during the inspection. In addition, employees who routinely work in the contamination control area are on a routine bioassay program. Any chronic ingestion problems resulting from individuals chewing gum or candy, smoking, or drinking water in the contamination control area would likely be identified through this program. Historically, the routine bioassays (as well as non-routine, periodic whole-body scans) have not identified significant intakes of uranium through ingestion. Inhalation of uranium from airborne radioactivity is the predominant risk at the facility.

NRC Conclusions

The licensee's responses are considered adequate. An independent review was performed and the concerns were adequately addressed. In addition, NRC inspectors independently verified the licensee's responses and actions during an NRC inspection (Inspection Report 70-36/99-002) performed during the week of April 26, 1999 (the results of which will be provided in a separate memo). There were no unresolved technical issues identified as a result of these concerns. However, one violation of NRC requirements with two examples eating (drinking containers) and smoking was identified and will be addressed during the next routine inspection.

Attachment: As stated