R3/C1-15

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

September 3, 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 (RIII-99-A-0029) (AITS M99-4122)

Allegation Review Boards held on April 12 and 26, 1999, recommended that the Fuel Cycle Branch (FCB) follow up on Concerns 6 and 8-21from AMS No. RIII-99-0029 and make a recommendation for referral to OI for potential wrongdoing. An inspection of the concerns forwarded to FCB was performed during the week of April 26-30, 1999. The results of the FCB inspection are provided below. After further staff review, Concerns 8, 9, 14, and 18 need additional inspection to be performed before a recommendation for closure can be made. These concerns will be addressed in another memo after the inspection activity is completed. To date, based on the inspection of the concerns addressed below, no potential wrongdoing has been identified.

Concern #6

The stack monitoring system was only being checked once a week and it should have been checked more frequently because ventilation motors were frequently found "burnt-out."

Review of Concern #6

The inspectors reviewed Health Physics (HP) Procedure 301.0, "Exhaust Stack Sampling," which defined the sampling practices used to evaluate the uranium concentration in the gaseous effluents from stack emissions. Records indicated that the plant staff typically collected the air samples on a Friday and performed sample analysis on a Saturday. The delay in performing the sample analysis was to allow for natural radon on the sample paper to decay. The inspectors reviewed several years of monthly sample results and noted no significant changes in monthly emissions except when the plant was in production versus not in production, as expected.

A licensee representative stated that when an air sampling pump was found inoperable, the plant staff would assign the average weekly emission quantity from the previous month to the week the pump was identified as defective. However, this method was not included in the current HP procedure. As a follow-up, the inspectors noted that the plant staff were finalizing a revision to the procedure which addressed the method used to assign weekly emission quantities when sample equipment was determined to be defective. The method described conformed with standard industry practice and met the requirements in 10 CFR 20 which are based on averaging releases on annual basis.

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The inspectors reviewed the plant staff's maintenance practice for repairing defective stack emission equipment. The plant staff continuously sampled 19 stacks. The sampling equipment draws a specified quantity of air from the stack through a filter medium. The sampling equipment included an air pump to draw the discharging air from the stack. In discussions with the inspectors, the plant staff explained that the emission stack sampling component with the highest failure rate was the air pump. To expedite defective pump replacement, the plant staff had four spare pumps and had ordered four additional new pumps. The inspectors determined that defective pumps were replaced by health physics and the pumps were repaired by maintenance. The inspectors identified no adverse trend in the pump failure rate, and maintenance records indicated that pumps required replacement every 2 to 3 years.

Conclusion

The plant staff adequately evaluated and responded to exhaust stack emission equipment failures and took timely corrective action to incorporate sampling protocol for equipment abnormalities. The concern was partially substantiated in that samples were taken once a week as required. Plant staff were adequately assigning a value for the weekly emission when a pump motor was found to have failed.

Concern #10

Operators were not being truthful in signing out the lapel monitors. This caused a lot of trouble because the HP technicians were not able to assign the dose to anyone. A lot of high samples were unassignable. This was a problem because the people were not being assigned their proper dose and the yearly dose records that the NRC gets were not accurate. Over a 2 year period, we accumulated a large box of unassignable samples. There were several hundred samples in question. The CI complained about this to management. Nothing was ever done until the CI reported it to an NRC auditor. The licensee started working on the situation the very next day. But what about all of those unassignable samples that we had to ultimately throw away?

Review of Concern #10

The inspectors reviewed the lapel air sampling program, and observed and interviewed operations' staff at various work stations to evaluate the effectiveness of the monitoring program.

The inspectors observed that workers were properly wearing the lapel air monitors per HP Procedure No. 303, "Lapel Air Sampling." The sample heads of the lapel air samplers were clipped to the workers' lapels on the outside of the smocks or coveralls, were properly positioned in the breathing zone, and were turned on. The workers appeared to understand their responsibilities for operation of the samplers. Each worker was assigned a sampler. Sign-out sheets were reviewed and no discrepancies were noted. The lapel air sampler calibration period was 6 months and the samplers observed were within the calibration period.

Discussions with plant HP management indicated that operators were assigned an inhalation dose on a shift basis. If an operator's lapel sample was lost, misplaced, or otherwise unusable (do to dropping the lapel sampler when bending over, for example), the operator would be assigned a dose for that shift based on his or her average dose from the last week of operations. (This approach is similar to approved methodology for calculating doses for lost film badges or dosimeters.) The HP management indicated that currently, approximately one to two lapel-sample results had to be calculated for missing samples per week. Compared to the several hundred samples taken on a weekly basis, this loss or unassigned sample rate appeared reasonable. Thus, the inspectors concluded that although some operators may periodically not be assigned the exact dose for their shift, on average the appropriate dose would be assigned and gross differences with the annual total effective dose would not be expected.

The previous method for assigning dose to an individual who did not have an actual dose record for a given shift because of sampler malfunction or operator carelessness was similar to the current method. The average dose for that week was determined for that individual and that dose was assigned for the missing day (shift). Since a statistically derived dose was assigned to workers when there was no actual dose data available, there would be little effect on the annual total effective dose.

Conclusion

The plant staff appeared to be using the lapel air monitors properly. Based on current observations of the operation of the lapel air sampling program and discussions with a licensee representative concerning previous dose assignment practices, the inspectors could not substantiate this concern in that every operator was assigned either a measure or representative dose on a shiftly basis.

Concern #11

The CI was concerned that certain HP technicians did not follow the HP procedures. Nothing was ever done.

Review of Concern #11

The inspectors reviewed selected portions of the Radiation Protection Quality Assurance (QA) program. Operation of the alpha/beta proportional counters was reviewed. Instrument calibration, voltage plateau testing, and the efficiency calculations were performed as required and the instruments were within the calibration period. No problems were noted.

The inspectors reviewed and observed the performance of routine contamination smear surveys in the plant during the course of the inspection. During facility tours and accompaniments with HP technicians, the inspectors noted that the controlled area was

properly posted, as were areas requiring postings for airborne radioactivity which required the use of respiratory protection. Health physics technicians were observed performing routine duties, selected QA records related to instrumentation were reviewed, and a HP technician was interviewed. The inspectors did not identify procedural adherence problems and noted no concerns with the conduct of the radiation protection activities observed.

Conclusion

Implementation of the Radiation Protection Program was in accordance with the license and facility procedures. The inspectors could not substantiate this concern based on the observations made during the inspection.

Concern #12

The CI was concerned about the lack of a portal monitor for personnel to go through before exiting the plant. Management said it was too costly. We had friskers in place in the locker rooms. However, very few of the operators used them.

Review of Concern #12

The licensee was not required to have a portal monitor. Worker radiological practices in the change room were observed while workers were entering and leaving the restricted area. The workers donned and removed protective clothing properly and performed the appropriate surveys. No extraneous material, such as newspapers, was observed being taken into or out of the contamination control area. Radiological survey instrumentation used for frisking prior to exiting the plant contamination control area satisfied the required calibration frequency. Observations of employee practices for performing self-monitoring indicated that workers were properly trained in the use of radiation detection equipment. A licensee representative explained to the inspectors what could be taken into the contaminated area, and indicated that contraband had not been a problem to his knowledge.

Conclusion

The inspectors could not substantiate this concern based on the observations made during the inspection.

Concern #13

The CI was concerned about employees carrying books, magazines, and newspapers to the contaminated side. When they were finished with the books, they took them back over on the clean side without frisking them. This was reported to management. Nothing was ever done about it.

Review of Concern #13

Activities in the change room were observed while workers were entering and leaving the restricted area. The workers donned and removed protective clothing properly, and performed the appropriate surveys. No extraneous material, such as newspapers, was observed being taken into or out of the restricted area. Radiological survey instrumentation that was used for frisking prior to exiting the plant restricted area was appropriately calibrated. Observations of employee practices for performing self-monitoring indicated that the employees were properly trained in the use of the radiation detection equipment. A licensee representative explained to the inspectors what could be taken into the contaminated area, and indicated that contraband in the contamination area had not been identified as a problem.

The inspectors discussed frisking requirements when exiting a contamination area with operators and management. In discussions with the inspectors, selected operators explained the appropriate method for surveying articles for contamination prior to exiting the contaminated area. In addition, these operators stated that health physics procedures had always required articles to be surveyed prior to removal and were unaware of any past repetitive deficiencies in this area. Management stated that there had been a few cases were operators were observed not thoroughly surveying an article prior to removal from a contamination area and the issue was addressed with the individuals when identified.

Conclusion

The inspectors could not substantiate this concern based upon the observations made and discussion with operators and management during the inspection.

Concern #15

The CI was concerned about the fact that HP technicians quit checking operators' hands while they were in the cafeteria. A large percentage of employees would not wash their hands before coming into the cafeteria to eat. When we made our surveys, they were hot (contaminated) a lot of times. The CI's idea was to check the employees' hands at least once a shift. Nothing was ever done about this situation.

Review of Concern #15

According to the site Health Physicist, the HP technicians do perform random surveys of workers outside of the contaminated area on a monthly basis. This includes surveying workers hands when they are in the cafeteria. Because the cafeteria was located outside the contamination control area, the employees would be required to survey their hands before eating. Occasionally contamination near or slightly above the licensee's release limits has been found on a worker's hands or other parts. When this happens, the worker is decontaminated and resurveyed. Additional training was provided to the involved employees to improve their contamination survey techniques.

Personnel were required to frisk themselves (including their hands) when exiting the contaminated area. They were not required to wash their hands when exiting the contaminated area. However, the inspectors randomly observed workers exiting the contaminated area and noted that most of the workers were washing their hands, after frisking and crossing the step off area.

Conclusion

The inspectors substantiated this concern in that HP staff indicated personnel in the cafeteria had been identified with contamination on their hands in the past. However, the inspectors did not identify a violation of NRC requirements. Employees observed exiting the contamination area during the inspection performed appropriate contamination surveys. Although the CI's idea for checking workers hands each shift might be a good HP practice, the licensee is not required to do this by the license.

Concern #16

The CI was concerned about certain HP technicians not following the proper procedures while running daily efficiencies and source checks on the Tennelec counting systems and the Canberra counting system. The CI also complained that a former HP trained the CI to use water in the planchets to run the backgrounds for the Tennelec counting systems. Nothing was ever done about this.

Review of Concern #16

The inspectors reviewed selected portions of the Radiation Protection QA program. Operation of the alpha/beta proportional counters was also reviewed. Instrument calibration, voltage plateau testing, and efficiency calculations were performed as required and the instruments used were within the calibration period.

When performing a gross alpha/beta count on water samples, a background count (water) would be necessary. No problems were noted.

Conclusions

The inspectors could not substantiate this concern based on the observations made during the inspection.

Concern #17

The CI was concerned about the floors always being dirty and over the contamination limits in the Pellet Plant, Erbia Plant, Red Room, Green Room, and decontamination area. Supervisors were throwing cleanup sheets in the trash instead of getting the floors cleaned. Nothing was ever done about this.

Review of Concern #17

During a facility tour, the inspectors noted that general housekeeping had improved since the last inspection. Specifically, the plant staff had removed spare equipment from the Oxide Conversion Plant, shipped a majority of the contaminated soil containers filled as a part of the remediation effort for the former evaporation ponds, and disposed of debris from behind Building 253.

The inspectors requested a health physics technician to randomly perform contamination smear surveys in the Erbia and Pellet Plants, and the Red and Green Rooms. The smear survey results were below the Section 3.2.6.2 license requirement action limit of 5,000 disintegrations per minute per 100 square centimeters (dpm/100cm^2), but one sample was contaminated above a 2,500 dpm/100cm^2 administrative action limit which required the plant staff to clean the area within 24 hours. The inspectors noted that the contaminated area was cleaned by the following morning. In addition to requested specific contamination smears, the inspectors noted that the controlled area was properly posted, as were areas requiring posting for airborne radioactivity.

The inspectors reviewed selected weekly contamination survey records and discussed clean-up practices with supervisors. The inspectors noted that records indicated that when health physics technician identified contaminated areas, the areas were decontaminated within the time periods specified in the license. The supervisors explained that areas where visible or known contamination was noted by health physics technicians were brought to their attention immediately and the area was secured. In addition, the inspectors noted that the licensee was procedurally required to survey any article leaving the contaminated area (including cleanup sheets). The inspectors also noted that contaminated trash was staged for disposal in the contaminated area.

Conclusion

The inspectors noted no contamination concerns for the areas observed and selected for survey. Contaminated trash was staged appropriately in the contaminated area and was surveyed prior to release. Survey sheets (cleanup sheets) generated by HP technicians were being addressed appropriately by the responsible supervisors. The inspectors could not substantiate this concern.

Concern #19

The CI was concerned about the Shipping and Receiving Supervisor releasing radioactive shipments which had not been surveyed by HP. On several occasions, shipments that were released by the supervisor had to be recalled after they had left company property. This happened more than once. It also displayed a blatant disregard for the role of the Health Physics Department.

Review of Concern #19

The inspectors interviewed security force employees and two HP technicians and reviewed selected shipping records to determine the frequency that shipments were returned to the site. The inspectors did not identify any shipment returned because of a failure to perform radiation surveys. During the interviews, three security force employees stated that they were unaware of any case where a shipment was returned to the site because a radiation survey had not been performed.

The inspectors reviewed randomly selected shipping papers and discussed the requirement to survey outgoing shipments with operators. The inspectors noted that the licensee had performed the required transportation surveys and appropriately documented the results for several outgoing shipments. In discussions with the inspectors, operators explained that all articles leaving the contaminated area were required to be surveyed. If the operator found the article contaminated, Health Physics was contacted and the article was cleaned before it was released for shipment.

Conclusion:

The inspectors noted no examples where shipments were returned to the site because of a failure to perform a radiation or contamination survey. The shipping records and discussions with responsible personnel indicated that shipments were being made in accordance with Department of Transportation and NRC requirements. The inspectors could not substantiate the concern.

Concern #20

The CI was concerned about the policy which allowed some contractors unescorted access into the plant. This action was made to help the production departments. It was also made to reduce the amount of money spent on hiring escorts. The problem with contractors being unescorted was that the contractors were caught smoking in contaminated areas, working in places where they should not be because of high contamination. They were also caught in contamination areas without the proper protective clothing. It was not a good idea to allow contractors to have a free run of the plant.

Review of Concern #20

The inspectors reviewed selected requirements of Operations Sheet (OS) 7002.00, "Security and Film Badging." Specifically, the inspectors reviewed the requirements for visitors to gain access to restricted areas. The inspectors reviewed the training records of five contractors who recently had access to restricted areas within the process plant. The inspectors identified that the five contractors had received the mandatory indoctrination training required by Section 2.5 "Training," of the license application. However, the inspectors identified that one of the five

contractors was issued a red rather than a yellow badge, which required the licensee to escort this contractor per OS 7002. The Regulatory Affairs Manager explained that contractors received yellow badges (no escort required in restricted areas) only after they had demonstrated to the Regulatory Affairs Manager's satisfaction that the contractors were knowledgeable of the plant requirements in all respects.

The inspectors noted that the licensee procedurally restricted eating, drinking, and smoking in the contamination-control areas of the plant. The exception is that the procedure allowed the plant staff to chew gum, use cough drops, or candy provided the employee put the gum, candy, or cough drops in their mouths prior to entering the contamination area. In discussions with the inspectors, two contractors interviewed clearly understood the smoking and eating restriction in the contamination area.

The inspectors discussed with management the past performance of contractors. Management stated that contractors, as well as new employees, had been caught eating, drinking sodas, and smoking in restricted areas in the past and this activity was stopped when identified. Remedial training or other discipline was applied when the problems were identified.

Conclusion

The inspectors concluded that the licensee's program for issuing visitors access to restricted areas was controlled in accordance with the license and Physical Security Plan. In addition, the inspectors noted that selected contractors interviewed during the inspection were cognizant of smoking and eating restrictions in the contamination area. However, the inspectors concluded that contractors, as well as new employees, had been caught smoking, drinking soda, and eating in restricted areas, and corrective actions were taken when this occurred. The inspectors substantiated this concern, but did not identify any violations of NRC requirements during the inspection.

Concern #21

The CI was concerned about the staff in the HP Department not receiving proper training. The CI completed training in the [ ] and had almost [ ] coming to Hematite. The other HP technicians have no schooling in the HP field except what they have learned at the plant. When the CI first came to ABB-CE Hematite, they had a program in place for training HP technicians. They were sent to a special school in Oak Ridge, Tennessee. When the current Regulatory Affairs Manager came aboard, he stopped that program. There was only one training session held at ABB-CE the entire time the CI was there. Ex 7C

Review of Concern #21

The inspectors reviewed the licensee's HP technician training program. Training was performed onsite and appeared to be adequate to meet the license requirements. The CI appeared to have more extensive training and experience [ ] than most of the HP technicians. The CI's level of training and experience, while valuable, would not be 7C

necessary for the radiation risks that are present at the licensee's facility or to meet the requirements in the license. In addition, HP technicians observed during the inspection performed their duties in accordance with procedural and license requirements.

Conclusion

The inspectors could not substantiate this concern based on the review performed during the inspection.

Recommendation

Based on the results of the inspection, the inspectors were not able to identify that any of the concerns were continuing to occur for current operations. The inspectors concluded that, in general, the licensee had policies and procedures for handling the problems raised which appeared to be appropriately implemented. However, a number of the concerns inspected involved activities for which there is little documentation or indication of a violation occurring after the fact. Some concerns were substantiated, but appeared to be resolved by the licensee appropriately. Based on these considerations, the Division does not recommend that a referral to OI for potential wrongdoing be made at this time and plans to take no further action for the concerns addressed.