CINTICHEM, INC.

INTEROFFICE CORRESPONDENCE

August 12, 1988

United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

ATTENTION: Ronald R. Bellamy, Chief
Facilities Radiological Safety and
Safeguards Branch

Dear Mr. Bellamy:

Reference: NRC Inspection Report 50-54/88-01; 70-687/88-04
dated 7/13/88

This letter is in response to the Notice of Violation that was appended to the referenced inspection report. Our immediate corrective actions with regard to the apparent violations have been as follows:

VIOLATION A:

10 CFR 20.201, "Surveys", requires in part that each licensee shall make or cause to be made such surveys as may be necessary to comply with the regulations in 10 CFR 20. 10 CFR 20.106, "Radioactivity in effluents to unrestricted areas", limits the concentrations of radioactive material that may be released as an effluent to an unrestricted area.

CINTICHEM RESPONSE:

Cintichem has terminated the use of the hot cell emergency ventilation system until appropriate effluent monitoring equipment has been installed on the system to assure compliance with 10 CFR 20.106. Cintichem is in the process of installing such equipment to properly evaluate the radioactivity in this ventilation system.

VIOLATION B:

SNM-639, section 3.2.2, "Ventilation Requirements", requires in paragraph 5 that "A quarterly efficiency test shall be performed on hot cell carbon effluent filters."

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VIOLATION B: (continued)

Contrary to the above, as of the date of this inspection, quarterly efficiency tests of the Hot Cell Emergency Ventilation System were not performed. This system, which consists of carbon and particulate filters, takes suction on the hot cells and exhausts directly to atmosphere.

CINTICHEM RESPONSE:

After installation of the appropriate effluent monitoring equipment and prior to routine use of the hot cell emergency ventilation system, Cintichem will perform an appropriate filter efficiency test of this system as per our SNM-639 license conditions.

We believe that more information about the history of these hot cell filters should be presented which may provide for a better understanding of why and when they were installed, and the consequences of operating them. Two emergency exhaust blowers exist. Unit A takes suction from the main hot cell exhaust vent header and Unit B takes suction from the hot cell lighting fixture vent header. Unit A was installed approximately 20 years ago according to ventilation system survey records on file. The exact date of installation is unknown. This unit had been used when it was necessary to isolate the hot cells from the normal exhaust ventilation fans (main and auxiliary) for doing filter maintenance work. Although it was not documented, it was deemed appropriate to operate in this manner because work with radioactive materials in the cells was suspended (thereby eliminating potential sources of airborne radioactivity), the air in the cells was diluted due to the opening in the system at the filter bank, the air was filtered through HEPA and carbon filters, and the time of operation was very short. Consequently, even if the airborne concentration of radionuclides in the effluent were in excess of Pt 20, App B., Table II limits at the point of release, when averaged over the allowed period, it would not be in violation of Pt 20.106. Unit B was installed in 1984 as a replacement for Unit A. It has a capacity of approximately 5 times that of Unit A, and a better filter system. The purpose of Unit B remained unchanged; it was to be used as back-up when maintenance work was done on the ventilation system which required isolation of the hot cells from the main and auxiliary hot cell fans. As an added measure of security against airborne releases from the cells, a pressure switch was included in the control circuit of these emergency fans to start them if the negative pressure in the cells rose to 0.1" H_2O.

Since this inspection, we have reviewed the operating history of these units over the past year and we have reconstructed the following:

UNIT A was operated:

(a) to test D/P of the filter each month and 4 quarterly functional tests each of less than one minute duration. (Total < 1 hour)

(b) during maintenance work on the hot cell #1 window on 16 occasions lasting for approximately 3 hours on each occasion (Total 48 hours)

UNIT B was operated:

(a) to vent the waste drum transfer cask during waste drum unloading from Cell 5 on 94 occasions. The duration of each unloading was about 20 minutes. (Total < 32 hours)

(b) to provide cell ventilation on 4 occasions during maintenance work on the hot cell filters. Each occasion lasted for about 2 hours. (Total 8 hours)

(c) to test D/P of the filter each month and 4 quarterly functional tests each of less than one minute duration. (Total < 1 hour)

Except for the D/P and functional testing, the airborne radionuclide concentration in the exhausted air on the above occasions would be much less than that during the normal operation of the cells because operation in the hot cells were suspended during these periods and the cell air was diluted due to the system being open.

In particular, during the cell #1 window change, the main exhaust system was operating in parallel with the cell 1 fan (Unit A) and during the waste drum transfers the Unit B suction was taking air from above the waste drum transfer cask located behind the hot cell. Under the conditions described above, it is unlikely that airborne radioactive concentrations in the emergency fan effluent during these operations were typical of the normal hot cell air effluent. This condition, in addition to the relatively short operating time leads us to conclude that the effluent was well within MPC limits.

We have installed ducting and sampling equipment whereby this effluent can be sampled and analyzed. We have a plan to reconstruct the conditions described above in order to obtain an accurate estimation of what the actual effluent was during the past year. Effluent release reports will be revised as necessary after these measurements are completed. We request that we be allowed until December 31, 1988, for completion of this work since we believe several individual measurements of each reconstructed condition will be required in order to obtain an accurate assessment.

The fact that the most recent design review of Unit B by the Nuclear Safeguards Committee prior to installation did not include an assessment of the need to monitor the effluent from this system is recognized as a deficiency in the committee proceedings. The omission is attributable to the perception by the committee that the purpose of Unit B was to improve the existing system that had already been in place for many years. Attention was focused on the proposed changes rather than assuming a "zero based" position. The Nuclear Safeguards Committee has been directed to develop by September 30, 1988, a protocol for reviewing all future facility and procedural changes or additions. This protocol will include an assessment of resultant occupational and non-occupational doses.

We are confident that the corrective actions described above will provide the data to reasonably assess the effluent from this emergency ventilation system in the past and also to preclude future unmonitored effluent.

Sincerely,

J. J. McGovern
Plant Manager

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