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UNITED STATES
 ATOMIC ENERGY COMMISSION
 WASHINGTON, D.C. 20545

Feb. 14, 1966

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Dear Chet:

I am writing in response to your letter of February 2 concerning your specific questions with respect to the determination of losses of materials at NUMEC and also with respect to your observations on the relationship between safeguards and the problem of preventing the proliferation of nuclear weapons.

You may recall that in my letter of January 25, 1966, in response to Mr. Conway's letter of December 3, 1965, we outlined the health and safety and materials accountability surveys performed of licensees and of fixed price contractors who are also licensees. In the context of that response I would like to answer your specific questions.

1. What specific actions has the AEC taken since discovery of the NUMEC loss to determine if similar situations exist at other licensed processing, conversion and fabrication facilities?

Answer: Process losses and materials unaccounted for as reported to the AEC by other plants and resulting from accountability surveys made during the past year have not raised questions which could not be quickly resolved to the AEC's satisfaction. Our personnel conducting nuclear material surveys have satisfied themselves that the reported normal operational losses were within acceptable limits.

2. What is the basis of the statement in Mr. Hollingsworth's letter that "no evidence has been developed that would suggest that the NUMEC losses occurred under circumstances that would indicate possible diversion"?

Answer: The nuclear materials survey performed in November at NUMEC was specifically designed to ascertain the nature of the losses and the disposition of the materials. This survey went far beyond that which is normally performed at contractor-licensee plants in that the physical inventory tests were more extensive. That survey revealed no evidence which would lead us to believe or suspect that the material had been diverted.

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3. Has the AEC determined whether an inquiry by the AEC's Division of Inspection, or the Federal Bureau of Investigation, is warranted?

Answer: In the absence of evidence or suspicion of violation of law, we have determined that an inquiry by the FBI is not now warranted. Our Division of Inspection is presently reviewing the survey report and a determination has not been made as to the need for further inquiry by that Division.

4. What specific action has the AEC taken, or does the AEC plan to take, to improve the AEC's regulations, requirements and procedures to help assure that losses such as those described above do not go undetected for long periods of time?

Answer: The General Manager and the Director of Regulation have underway a number of studies jointly and cooperatively undertaken to ascertain the possible need for additional control by regulation or by direction. These studies are being pursued diligently with a view toward completion at the earliest possible time. As soon as the Commission has completed its review we shall advise the Committee of any actions we intend to take.

We have endeavored above to provide succinct answers to your specific questions. We believe it is important, however, in order that there be no misunderstanding, that these responses be considered in the context of the overall situation which may be summarized as follows:

The 61 kgs of U-235 that cannot be accounted for represent cumulative losses charged to the WANL contract. It is not now possible to establish a point in time, or even a definable period, when the losses may have occurred or whether in fact the WANL material was used knowingly or inadvertently to offset losses on other contracts. Further, because the NUMEC records system was not set up to provide such data, it is not possible to identify all losses with particular contracts. Therefore, it cannot be said unequivocally that theft or diversion has not taken place. During, however, the recent extensive survey at NUMEC the principal possible loss mechanisms were examined in detail. Based on that examination, as well as an association with the NUMEC operation over an eight year period (during which period NUMEC did report and pay for losses), the most probable explanation is that NUMEC consistently underestimated its plant process losses; and, that the difference between actual and estimated losses was passed on from completed jobs to new jobs. Thus, the losses attributable to the WANL contract probably include an accumulation of deferred losses over an eight year period.

There is evidence to support the above theory. The book inventory at NUMEC carried values of material in residues and on filters higher than

those which resulted from physical analyses. For example, NUMEC reflected in its inventory estimates of approximately 31 gm of U-235 per filter. Gamma spectrometry of over 700 such filters, verified by chemical analysis of samples, supported only an average of about 12 gm per filter. NUMEC estimated that in excess of 50 kg of U-235 was contained in contaminated equipment and various combustible wastes which had been discarded to burial grounds. When AEC directed that the burial pits be exhumed, NUMEC incinerated and analyzed representative samples and on its own concluded that only about 5 to 6 kg would be recovered from the pits. Independent analysis by AEC confirmed this lower estimate. Additionally, the consistently high rate of return on scrap recovery contracts contributes to the theory that NUMEC did not take the full extent of losses as they occurred and compounded them through successive contracts. Accordingly, it appears that the losses for which NUMEC is now paying under its financial responsibility requirements are primarily the result of inadequate attention by NUMEC to generally recognized materials management methods. It must also be pointed out that NUMEC maintains physical security controls over enriched U-235 not in process. The Commission is currently considering whether any further steps could and should be taken which would add a materially higher degree of confidence to the judgments that may now be drawn from available information.

It should be noted that in connection with the most recent survey, numerous recommendations were made to NUMEC management, all of which were accepted and most of which have already been implemented.

I would like to assure the Committee of the Commission's very deep concern over the problem of proliferation of nuclear weapons capability and the need for assuring that our safeguards for nuclear materials are adequate.

Cordially,

(Signed) Glenn T. Seaborg

Chairman

Honorable Chet Holifield
 Chairman, Joint Committee on Atomic Energy
 Congress of the United States

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