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(Conway called you on 11/27)

VERMONT YANKEE
NUCLEAR POWER CORPORATION

RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

FVY 85-106
REPLY TO:
ENGINEERING OFFICE
1671 WORCESTER ROAD
FRAMINGHAM, MASSACHUSETTS 01701
TELEPHONE 617-872-8100

November 26, 1985

U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Washington, D.C. 20555

Attn: Mr. James M. Taylor, Director

References:
a) License No. DPR-28 (Docket No. 50-271)
b) Letter, USNRC to VYNPC, Notice of Violation and Proposed Imposition of Civil Penalty (NRC Inspection No. 50-271/85-21), dated October 22, 1985
c) Letter, VYNPC to USNRC, FVY 85-105, Response to Notice of Violation, dated November 25, 1985

Dear Sir:

Subject: Answer to Proposed Imposition of Civil Penalty

This answer is written in response to your proposed imposition of civil penalty, dated October 22, 1985 [Reference b)], which proposes the imposition of a civil penalty in the amount of fifty thousand dollars ($50,000) as a result of an August 8, 1985 incident at our facility. This incident resulted in an unplanned occupational radiation exposure of approximately 1.2 rem to a Chemistry and Health Physics (C&HP) Technician. Your letter indicated that the NRC considered mitigation of the penalty; however, no mitigation was proposed because:

1) given the inexperience of the C&HP Technician who received the exposure, and the extremely high radiation fields in the area, the technician could have received a serious overexposure;

2) NRC inspectors had previously warned Vermont Yankee staff that the absence of formal written procedures for entering the TIP room could result in unplanned exposures, yet such a procedure which could have prevented this event was not prepared; and

3) comprehensive long-term corrective actions including permanent procedures governing entry into any high radiation area were not in place at the time of the Enforcement Conference, held on September 5, 1985.

We have carefully reviewed your October 22, 1985 letter and have concluded that although the letter accurately summarizes the events leading to the exposure incident, we believe that sufficient justification exists such that mitigation of the proposed civil penalty is warranted. Therefore, in accordance with the provisions of 10 CFR 2.205, we request mitigation of the proposed penalty based on the information provided below:

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RESPONSE TO NRC BASIS FOR NOT PROPOSING MITIGATION

A. Experience of the Health Physics Technician

We agree with the NRC's contention that the relative inexperience of the HP Technician, coupled with the high radiation fields, could have resulted in an overexposure incident. However, several factors existed which we believe served to minimize the potential for a serious overexposure to the individual. These factors include:

1) Prior to assuming his duties as a HP Technician, the individual met with the Plant Chemist and Plant Health Physicist as part of our proceduralized qualification certification program. At that time, the plant Health Physicist discussed the radiological concerns associated with the TIP Room and went over the administrative/procedural controls in place at that time to control access to the room. Although no specific instructions were given regarding a threshold radiation level or limit for immediately exiting the room, the concern for high radiation levels and personal safety were conveyed.

2) Prior to performing the August 8, 1985 survey of the TIP Room, the HP Technician discussed the specific goal of the survey with Instrument and Control personnel; reviewed the procedure for performing radiation dose surveys; and reviewed the dose map related to a recent radiation dose survey of the TIP Room. All of these actions were intended to insure that the dose survey was properly preplanned thereby minimizing his stay time in the TIP Room.

3) Prior to performing the TIP Room survey, the HP Technician contacted the Control Room for back-up personnel assistance. Two Auxiliary Operators (AO's) were dispatched to assist the Technician. It was one of the AO's who became concerned about the time it was taking the Technician to perform the survey, subsequently entered the room, recognized the high radiation fields and the corresponding threat to personal safety, and told the Technician to back out of the room.

Although backup personnel were not required for TIP Room surveys prior to the incident (our procedures have subsequently been revised to require backup personnel assistance), the HP Technician's awareness of the potential hazards inside the Room resulted in his request for assistance to perform the survey. This prudent step served to minimize the probability that the HP Technician would have received a serious overexposure.

4) Consistent with the plant procedures and administrative controls in place at the time of the incident, the HP Technician contacted the Chemistry and Health Physics Supervisor prior to entering the TIP Room. Since the survey was being performed during the backshift, the Technician telephoned the Supervisor at home. During the telecon, the Supervisor discussed the potential for high radiation levels and believed that the HP Technician was aware of, and prepared to deal with, potential high radiation levels. Subsequent to his telecon with the C&HP Supervisor, the HP Technician also discussed the intended TIP Room survey with a C&HP Assistant who was on-site. The C&HP Assistant also warned the Technician of the potential for high radiation levels in the room.

Shortly after the HP Technician left to perform the survey, the C&HP Assistant decided to go to the TIP Room to make sure there was no problem in performing the survey and assist the HP Technician, if necessary. He arrived at the TIP Room entrance door just as the HP Technician and the AO were coming out of the TIP Room.

Subsequent discussions with the C&HP Assistant indicate that if the Technician was still in the Room performing the survey, he would have gone to the entrance door to see how the survey was proceeding. We believe that based on the experience level of the C&HP Assistant, he would have recognized the high radiation levels and terminated the survey. We have also concluded that if the HP Technician had stayed in the TIP Room until the arrival of the C&HP Assistant, the additional radiation dose he would have received would not have resulted in a serious overexposure.

Based on the above, we believe that the likelihood of an overexposure resulting in serious personal injury was limited. We agree that the experience level of the HP Technician was a contributor to the incident; however, it is apparent from discussions with this individual that he took appropriate precautionary measures, carefully followed the provisions of the plant procedure for the conduct of radiation dose surveys, but simply failed to recognize the personal impact of the radiation levels he was encountering. As detailed in our November 25, 1985 Notice of Violation response [Reference c)], the need for enhancements to the Chemistry and Health Physics Training Program and the procedures for performing radiation dose surveys are equally essential in assuring that a similar incident does not occur in the future. These enhancements are intended to reduce the dependency on experience as a prerequisite for performing dose surveys or doing other health physics-related work in potentially high radiation areas.

B. Previous NRC Warnings

Your October 22 letter states that, "the NRC is concerned that formal, written and approved procedures for personnel entry into the TIP Room, that could have prevented this exposure, had not been prepared or implemented, despite the fact that on at least two occasions, NRC inspectors had informed your staff of that need."

We discussed the circumstances of the prior notifications referred to above with present and former Chemistry and Health Physics staff members as well as NRC Region I personnel. Based on these discussions, we have determined that the two prior notifications refer to verbal discussions held in early 1983 and early 1984. Specifically, the first discussion occurred when a Region I inspector called our C&HP Supervisor to discuss a personnel exposure incident detailed in an I&E Information Notice issued in late 1982. The second conversation occurred during a routine inspection of our radiological safety program in March 1984. However, to the best of our knowledge neither conversation resulted in any concerns being expressed relative to the adequacy of our administrative controls governing TIP Room access.

We also reviewed our correspondence records to identify any NRC documentation regarding concerns for potential personnel overexposure. This included the review of both NRC correspondence such as Information Notices, Bulletins and Vermont Yankee Inspection Reports, as well as Institute of Nuclear Power Operations (INPO) Significant Operating Event Reports (SOER's), Significant Event Reports (SER's) and Operations Event Reports (OER's).

As a means of documenting the findings of our review and demonstrating that we did take appropriate actions following the conversations with Region I inspectors and our receipt of NRC and INPO correspondence regarding overexposure incidents at other facilities, the following information is provided:

1) On December 21, 1982, the NRC's Office of Inspection and Enforcement (I&E) issued Information Notice 82-51 entitled, Overexposures in Pressurized Water Reactor (PWR) Cavities. The Notice was issued to all licensees and referred to a potential overexposure incident at Zion I.

   We received the Notice on January 3, 1983. Consistent with the provisions of our Operations Experience Assessment Program (which was developed in response to NUREG 0737), the Notice was sent to our Nuclear Shift Engineering (NSE) group for determination of applicability to Vermont Yankee. The NSE review/assessment concluded that the

Zion incident had applicability to Vermont Yankee should personnel be in the TIP Room while the detectors were being withdrawn from the core. The Notice was then forwarded to the Chemistry and Health Physics Department for formal evaluation and dispositon of the NSE concern.

The Plant Health Physicist reviewed the Notice, as well as a summary of a second radiological incident detailed in the May-June 1982 Edition of Power Reactor Events (NUREG/Bi-0051). As a direct result of this review, the Health Physicist took the following actions:

a) He issued a memorandum on January 31, 1983, summarizing the results of his review, including the implications of the events on Vermont Yankee's radiological safety program. This memorandum was distributed to all HP Technicians and Assistants.

b) Although the memorandum concluded that the administrative controls governing TIP Room access (RWP requirements and key control provisions) were adequate to avert an overexposure incident, he formally promulgated a revision to plant procedure AP 0503, Establishing and Posting Controlled Areas which formally procedualized the administrative controls in place at that time. The stated objective of this procedural revision was, "To add insurance that personnel overexposures will not occur when TIP Room entries are made." The procedure change was issued on January 31, 1983.

c) He promulgated a revision to plant procedure AP 0507, Containment Entry, which required that the TIP machines be tagged out prior to containment entry. The purpose of this change was to minimize the potential for inadvertent personnel exposure inside the drywell.

d) A copy of the Information Notice was placed in the C&HP Night Orders Log for the information of all department personnel on January 11, 1983.

2) As indicated above, we believe one of the notifications cited in your October 22 letter occurred when a Region I staff member called our C&HP Supervisor in early 1983 (following the issuance of Information Notice 82-51) to discuss overexposure concerns relative to TIP Room entries and what controls we had in place at that time. To the best of our knowledge, the discussion between the Region I inspector and the C&HP Supervisor did not identify any areas of concern or result in any recommendations for specific actions with respect to modifying our controls for TIP Room access. It is not clear whether or not all of the actions taken in response to Information Notice 82-51 were in place at the time of the telecon.

3) Two broad-based inspections of Vermont Yankee's radiological safety programs took place subsequent to the issuance of the Information Notice. The first was conducted during the week of December 6, 1983, and the second during the week of March 12, 1984. Neither inspection report specifically addresses concern for the potential for personnel overexposures in the TIP Room or any other high radiation area of the plant. However, during the second inspection the Plant Health Physicist at that time does recall a philosophical discussion of the adequacy of the procedures, policies and controls associated with our radiological safety program given the experience levels of our Chemistry and Health Physics staff.

At that time, both parties agreed that the existing policies, procedures and controls were adequate, but the Region I inspector cautioned that should the C&HP Department lose some of its experienced staff members, certain procedures and controls would likely need to be enhanced if the new staff members were less experienced personnel. Particular concern was expressed relative to the need to upgrade the procedure for issuing Radiation Work Permits (RWP's).

Following the March 1984 inspection, the Plant Health Physicist initiated a review of certain department procedures in response to the NRC inspector's concerns. As a result of this review, the RWP procedure was significantly revised and minor changes were made to other department procedures.

4) On March 21, 1984, I&E issued Information Notice 84-19 entitled, Two Events Involving Unauthorized Entries Into PWR Reactor Cavities. This Information Notice summarized two recent occurrences at Turkey Point 3 and Robinson 2 involving potential personnel overexposure incidents and requested licensees to review the implications of these events relative to their facility.

We subsequently reviewed the Notice per the provisions of our Operations Experience Assessment Program and concluded that the existing procedures governing TIP system operation should adequately ensure that the TIP probes are returned to the "in-shield" position after use, thereby minimizing the potential for inadvertent personnel exposures.

The Information Notice was also routed to C&HP and Reactor Engineering personnel for their information.

5) INPO issued SOER 85-03HP on April 30, 1985. The SOER summarized various reactor exposure incidents and recommended that utilities take various steps to minimize the likelihood of similar events occurring at their facility.

The SOER was reviewed by the Plant Health Physicist in accordance with the Experience Assessment Program. In a memorandum dated July 26, 1985, he concluded that the procedures governing access to high radiation areas were adequate in addressing the specific INPO SOER recommendations and that no further action was warranted at that time.

As indicated above, we believe we took appropriate action in responding to the verbal concerns expressed by the Region I inspector and in addressing the findings of the NRC's Information Notices and INPO's SOER. Although the specific circumstances of the August 8, 1985 TIP Room incident could not be foreseen within the scope of our reviews, meaningful and positive steps were taken by our staff to minimize the likelihood of such an event occurring at our facility. It should be noted that our response to Information Notice 82-51 resulted from our own internal assessment and would have occurred regardless of whether or not we were prompted by the NRC.

We have also reviewed Region I Inspection Reports and Systematic Assessment of Licensee Performance (SALP) Reports for Vermont Yankee which have been issued by the NRC since early 1982. To the best of our knowledge, there were no violations or inspector follow items related to personnel overexposure concerns. Our review also concluded that the enforcement history related to Vermont Yankee's radiological safety program resulted in no NRC proposals for escalated enforcement action.

C. Comprehensive Long-Term Actions

Your October 22, 1985 letter expressed concern that comprehensive long-term corrective actions were not in place at the time of the Enforcement Conference. We believe, given the nature of the incident and the time between the incident (August 8, 1984) and the Enforcement Conference (September 5, 1985), appropriate and timely short-term corrective actions were taken and substantial effort had been put into the development of long-term corrective actions.

We define long-term corrective actions as those which result from a broad-based evaluation of the incident including an assessment of the generic implications of the event. The goal of this evaluation is to identify all possible causes (e.g., programmatic weaknesses, training deficiencies, procedural inadequacies) of the event, scope out the various alternatives to address those causes, and develop a specific program to correct any related programmatic weaknesses.

To provide you with a better understanding of the steps (both short-term and long-term) taken by Vermont Yankee in response to this incident, we are providing the following summary:

1) On August 9, 1985, the morning following the exposure incident, the Plant Manager called a meeting with all personnel involved in the incident and all plant Department Heads. This meeting was also attended by representatives of the NRC and the Manager of Operation's staff. The purpose of the meeting was to discuss necessary immediate (short-term) corrective actions to ensure personnel safety and avert a recurrence of this type of incident.

   As a result of the meeting, the Plant Manager issued a memorandum which detailed various short-term corrective measures. These measures are discussed in detail in our Notice of Violation response letter dated November 25, 1985 [Reference c)]. In addition, the Plant Manager's memorandum directed that a Plant Information Report (PIR) be generated, "to thoroughly document and analyze this event and to provide recommended long-term corrective actions. The PIR should also consider the corrective actions mentioned above (short-term actions) and make recommendations regarding them as may be appropriate."

2) The Chemistry and Health Physics Supervisor was assigned the responsibility of generating the PIR. A draft version of the report was prepared and presented to the Plant Operations Review Committee (PORC) on August 30, 1985. At the PORC meeting, a Chemistry and Health Physics staff member presented the findings and discussed perceived long-term actions which would insure that a similar event would not recur in the future.

   Following discussions of the long-term recommendations, a set of actions was agreed upon. These long-term actions are detailed in the PORC Recommendations section of the final report.

3) In accordance with the plant procedure for PIR's, the report was revised to reflect the PORC recommendations and resolve additional concerns raised by the Plant Manager. The final report (PIR 85-02) was issued by the Chemistry and Health Physics Department on September 17, 1985 and forwarded to the Plant Manager for formal disposition. The Plant Manager subsequently dispositioned the long-term recommendations on September 21, 1985. In addition to directing that certain actions be taken to assure implementation of the PORC recommendations, he also determined that other actions should also be completed to further insure that a similar incident not occur in the future. His disposition of the long-term recommendations are documented as an addendum to the final PIR and constitute the long-term program for addressing the TIP Room incident.

4) Following the issuance of the PIR, plant management reviewed the incident to further assess the generic implications of the TIP Room incident. As a result of this review, the Plant Manager directed

that 1) an assessment be performed to insure that the existing procedures, policies and other administrative controls related to radiological safety are appropriate given the experience levels of the present and future Chemistry and Health Physics staff; 2) an evaluation be performed of the effectiveness of the short-term and long-term corrective measures to determine if additional actions should be taken; and 3) the C&HP Supervisor insure that the details of radiological safety incidents at Vermont Yankee (or other facilities) are reviewed and discussed at the Chemistry and Health Physics periodic department meetings.

We believe that the development and finalization of a long-term corrective action program occurred in a prudent and timely fashion. At the time of the Enforcement Conference on September 5, 1985, significant efforts had been taken by the Chemistry and Health Physics staff, as well as plant management, to assess the specific causes of the incident and develop long-term proposed actions. In addition, it should be recognized that the Chemistry and Health Physics staff was also responsible for implementing most of the short-term corrective measures delineated in the Plant Manager's memorandum of August 9, 1985. Finally, Chemistry and Health Physics Department personnel, as well as plant management and the Manager of Operations, spent considerable time assessing the incident and its ramifications in preparation for the September 5, 1985 Enforcement Conference.

We believe due consideration should be given to the significant efforts that took place between the time of the incident and the Enforcement Conference. We are convinced that a careful review of the sequence of events would conclude that the development and finalization of our long-term corrective action program was timely given the significance of the TIP Room incident.

JUSTIFICATION FOR MITIGATION IN ACCORDANCE WITH 10CFR2, APPENDIX C

Appendix C to 10CFR2 provides five criteria for justifying mitigation of a proposed civil penalty. In accordance with these criteria, Vermont Yankee hereby submits the following information:

1) Prompt Identification and Reporting

Upon recognition of the potential for a personnel overexposure in excess of federal regulations, Vermont Yankee promptly (within one hour) and conservatively notified the NRC of the incident. In addition, Vermont Yankee Operations and Chemistry and Health Physics personnel discussed the details of the incident with technical representatives of the NRC within two hours of the incident. Based on these discussions, we agreed not to allow

further TIP Room access until a full internal investigation was performed and additional appropriate controls were in place. Finally, we invited the NRC Resident Inspector from the Yankee Atomic plant at Rowe, Massachusetts (who was dispatched by Region I to follow-up on the incident) to attend the August 9, 1985 Plant Manager's meeting held to discuss the details of this incident. At the subsequent exit interview, the Inspector expressed appreciation for the openness and candidness of Vermont Yankee personnel during his investigation.

2) Corrective Action to Prevent Recurrence

As discussed above and as further detailed in our November 25, 1985 Notice of Violation response [Reference c)], several immediate corrective actions were taken to insure that a recurrence of the specific incident did not take place and to also minimize the potential that a similar incident would not occur in other areas of the plant. In parallel, consideration was being given to the broader implications of the TIP Room incident so as to develop comprehensive and meaningful long-term corrective actions.

3) Enforcement History

As discussed above, we performed a review of the Region I Inspection Reports and SALP Reports issued for Vermont Yankee since early 1982. To the best of our knowledge, there were no violations or inspector follow items related to personnel overexposure concerns. Further, our review indicates that no escalated enforcement action has been proposed by the NRC in the area of radiological safety.

4) Prior Notice of Similar Events

As detailed above, Vermont Yankee was aware of similar incidents and did perform evaluations of such incidents in accordance with our Operations Experience Assessment Program. Based on our evaluation of these incidents, specific plant procedures were revised and efforts were taken to inform Chemistry and Health Physics personnel of the potential for such incidents at Vermont Yankee. We also revised procedures to address the concerns expressed by the Region I inspector during his audit of our radiological safety program in March 1984.

5) Multiple Occurrences

To the best of our knowledge, this is the first occurrence of a potential personnel overexposure incident of this type at Vermont Yankee. We believe the combination of short-term and long-term corrective measures should significantly minimize the potential for a similar incident occurring in the future.

REQUEST FOR MITIGATION IN ACCORDANCE WITH 10CFR2.205

In accordance with the provisions of 10CFR2.205, Vermont Yankee Nuclear Power Corporation believes that mitigation of the proposed civil penalty is justified. We do not deny the specific violation to the requirements of 10CFR19.12; however, we believe that the NRC's basis for concluding that mitigation is not warranted deserves reconsideration.

It is not our intent to understate the potential consequences of the TIP Room incident. The seriousness with which we viewed this incident is demonstrated by the actions we took immediately following the event as well as our long-term corrective measures program. In addition, we believe our commitment to perform an assessment of not only the actions we have taken, but of the administrative controls governing radiological safety at Vermont Yankee, represents a comprehensive response to the TIP Room incident and clearly addresses all probable contributors to the event.

Should it be necessary, we are prepared to discuss any aspect of this matter with you at your convenience. We trust that your review will conclude that mitigation of the proposed civil penalty is appropriate in this case.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Warren P. Murphy
Vice President and
Manager of Operations