

TIC



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAR 23 1980

Docket Nos. 50-289
and 50-320

Metropolitan Edison Company
Attn: Mr. R. C. Arnold
Senior Vice President
260 Cherry Hill Road
Parsippany, New Jersey 07054

Gentlemen:

This is in response to your letter of December 5, 1979, which was in response to our letter of October 25, 1979, transmitting a Notice of Violation and a Notice of Proposed Imposition of Civil Penalties in the amount of \$155,000.

Your letter had as an enclosure a detailed response to each item of noncompliance set forth in the Notice of Violation. Similarly, Appendix A to this letter contains our evaluation of your response and states our conclusion regarding each item. In this regard, you are requested to submit supplemental responses as described in Appendix A. These responses should be in accordance with the instructions contained in Appendix A of the October 25, 1979, Notice of Violation.

Our letter of October 25, 1979, discussed the overall impact of inadequacies discovered as a result of the investigation undertaken after the March 28, 1979 accident. These inadequacies were the basis for the statement that your management controls for the operation of the Three Mile Island facilities were inadequate.

Your response to the proposed items of noncompliance provides additional details as to the aspects of these items and the accident. However, our belief that management controls were inadequate has not changed. The Metropolitan Edison Company apparently believes that there was generally good performance, both prior to and subsequent to the accident, that there were few real items of noncompliance and that these were relatively unimportant, and that the other cited items either were not noncompliances or were mere technicalities. As has been pointed out by many investigating organizations, there were numerous contributing factors to the accident on March 28. Moreover, for at least two hours following the reactor trip, actions could have been taken which would have changed the accident from the "worst in the history of the nuclear power industry" to a relatively minor operational problem. Clearly, during the time interval reviewed by the IE Investigation Team, the Investigation Report [NUREG-0600] shows that overall performance was not good, either preceding, during or following the accident.

With regard to the commitments you have made in your letter of December 5, 1979, and the additional commitments asked for in Appendix A to this letter, we wish to remind you of the difficulties experienced in the recent past,

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

8002020098

JAN 23 1980

particularly with regard to your Radiation Safety Program. It was Metropolitan Edison's failure to meet specific commitments made in July 1979 to upgrade the Three Mile Island Radiation Safety Program which led to the establishment on September 26, 1979, of the Special Panel on Three Mile Island Unit 2 Radiation Protection Program.

The response to two proposed items of noncompliance (Items 1 and 3) was based in part upon your belief that an NRC inspector confirmed a Metropolitan Edison judgement concerning Technical Specification 3/4.7.1. The inspection report may not be explicit in describing the areas inspected; however, the areas inspected and the inspection findings were discussed with Metropolitan Edison at the completion of this inspection. During the inspection covered by inspection report (50-289/78-23 and 50-320/78-36) the inspector verified that the required surveillance procedures had been completed, and that the Technical Specification requirements concerning the frequency of surveillance and the acceptance criteria as specified in the procedures were satisfied. There was no attempt during this inspection to evaluate the technical adequacy of the surveillance procedure for Emergency Feedwater (SP 2303-M14A/B/C/D/E). Moreover, despite the fact that previous inspections did not identify items of noncompliance, this fact does not absolve the licensee of the responsibility for items of noncompliance identified in this inspection.

The NRC recognizes the necessity of allowing reasonable operational discretion in those instances where plant conditions do not fall within existing procedures. However, the significance of isolating designed safety features, or removing those systems incorporated into the plant design specifically to protect the plant during accident conditions, cannot be overemphasized. The fact that plant conditions are outside those normally encountered or expected requires careful assessment before deliberately removing safety features since the unusual conditions themselves may increase the probability that the disabled safety feature will be needed.

In several places in Appendix A you are requested to submit additional information to complete your response to the Notice of Violation and the Notice of Proposed Imposition of Civil Penalties. We are aware that information has been and continues to be supplied by you to various NRC offices as a part of the ongoing activities at Three Mile Island. When submitting the additional information you may include by reference any information previously provided to any NRC organization component.

We have reviewed your response to the items of noncompliance cited. After careful consideration, we conclude that the items of noncompliance did occur as cited in the Notice of Violation, with the exception of items 4.D, 4.E.2, and 11 which were not found to exist as cited. Therefore, your enforcement history will be corrected. The Civil Penalties for withdrawn items are remitted.

Since the proposed Civil Penalty of \$155,000 was much less than the cumulative Civil Penalty of \$717,000 because the Atomic Energy Act limits the total Civil Penalty for any 30-day period to \$25,000, the mitigation has no effect on the dollar amount of the imposed Civil Penalty. Accordingly, we hereby serve the enclosed Order on Metropolitan Edison Company, imposing Civil Penalties in the amount of one hundred fifty-five thousand dollars (\$155,000).

~~8002070102~~

JAN 23 1990

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosures will be placed in the NRC's Public Document Room.

Sincerely,



Victor Stello, Jr.
Director
Office of Inspection
and Enforcement

Enclosure:

1. Appendix A
2. Order Imposing Civil
Monetary Penalties

Appendix A

For each item of noncompliance and associated Civil Penalty identified in the Notice of Violation (dated October 25, 1979) the original item of noncompliance is restated and the Office of Inspection and Enforcement's evaluation and conclusion regarding the licensee's response to each item and proposed imposition of Civil Penalty is presented.

ITEM 1

Statement of Noncompliance

Technical Specification 3/4.7.1, "Turbine Cycle," requires in Section 3.7.1.2, that three independent steam generator emergency feedwater pumps and associated flow paths shall be operable during power operations, except: if one emergency feedwater system is inoperable it must be restored to operable status within 72 hours or the plant must be in Hot Shutdown within the next 12 hours.

Contrary to the above, for an undetermined period just prior to the reactor trip at approximately 0400 hours on March 28, 1979, the flow paths to both steam generators were made inoperable by feedwater header isolation valve closure. (In addition, on January 3, February 26 and March 26, 1979, the flow paths from all three emergency feedwater pumps were simultaneously made inoperable by feedwater header isolation valve closure during the performance of, and in accordance with, an improper surveillance test procedure.)

This violation contributed to an accident. (Civil Penalty \$5,000)

Evaluation of Licensee Response

The licensee denies this is an item of noncompliance and bases that denial on the assertion that there is only one emergency feedwater system for Unit 2. Metropolitan Edison further asserts that the Technical Specifications (TS) permit the emergency feedwater system to be inoperable for 72 hours and thus no noncompliance existed immediately prior to the accident or during previous surveillance tests. This assertion that inoperability of all emergency feedwater capability would or should be acceptable for a period of 72 hours is wholly inconsistent with the minimum equipment assumptions used in the analysis of accidents contained in Chapter 15 of the FSAR.

While the terminology used in the TMI Unit 2 FSAR describes one system, as noted by the licensee, the term "system" in the TS cannot be construed to support the licensee's assertion. Metropolitan Edison's interpretation of this term is not supported by the analysis assumptions used in the FSAR or the Safety Evaluation Report Analyses. To place this system in a condition contrary to these assumptions violates the operability of this system; operability is defined in TS 1.6.

The licensee further asserts that support for their position is to be found in an IE Inspection Report. This inspection report (50-289/78-23 and 50-320/78-36) states that the inspector verified that the required surveillance procedures had been completed, and that the Technical Specifications requirements concerning

the frequency of surveillance and the acceptance criteria as specified in the procedures were satisfied. There was no attempt during this inspection to evaluate the technical adequacy of the surveillance procedure for Emergency Feedwater (SP 2303-M14A/B/C/D/E).

The licensee's response indicates that its analyses support the conclusions of the President's Commission on the Accident at Three Mile Island regarding the effect of the closed EFW valves on the outcome of the accident. That conclusion is that the closed valves had no significant effect on the outcome of the accident. This conclusion is consistent with the evaluation provided in Section I-4.2.3 of the Investigation Report. In that all of these conclusions and evaluations concur that the closed EFW valves misled the operators into drawing erroneous early conclusions, the item of noncompliance is appropriately classified as one which contributed to an accident.

Conclusion

The item as stated is an item of noncompliance. The information provided by the licensee does not provide a basis for modification of the enforcement action. In view of Metropolitan Edison's interpretation of TS 3/4.7.1 and of our conclusions concerning this item, a supplemental response is requested which specifies: (1) each procedure reviewed for Units 1 and 2 which isolates or defeats part or all of any system whose operation is required by the TS or by the accident analysis contained in the FSAR; and (2) the method by which the operability requirements will be satisfied during the conduct of each procedure identified in (1).

ITEM 2Statement of Noncompliance

The severity and uniqueness of the accident which occurred at Three Mile Island resulted in a marked reduction in the normal good health physics practices which are mandated by the NRC Regulations. Under the circumstances of an accident of this magnitude, the NRC recognizes that in the interest of reactor safety a departure from normal health physics practices and standards may sometimes be mandated by the exigencies that exist during such conditions. However, the NRC also believes that the licensee, with the resources available and taking into account the time frame available for conduct of safety-related functions, could have taken additional measures to better control the overall health physics actions and decisions which were made during the course of the accident. The following items of noncompliance exemplify unacceptable degradation from health physics practices pertaining to control of access to high radiation areas, conduct of radiation surveys, and personnel radiation exposure monitoring.

10 CFR 20.201, "Surveys," requires in Section (b) 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 20.202, "Personnel Monitoring," requires that the licensee supply appropriate personnel monitoring equipment and requires its use for each individual who enters a restricted area and is likely to receive a dose in excess of 25 percent of the applicable value specified in 10 CFR 20.101.

Technical Specification 6.12, "High Radiation Area," requires that each area in which the intensity of radiation is greater than 1000 mrem/hr be provided with locked doors to prevent unauthorized entry into the area and that any individual entering the area be equipped with a continuously indicating dose rate monitoring device.

10 CFR 20.103, "Exposure of individuals to concentrations of radioactive materials in air in restricted areas," requires in Section (a)(3) that the licensee make suitable measurements of the concentrations of radioactive materials in air for detecting and evaluating airborne radioactivity in restricted areas for the purposes of determining compliance with the regulation in 10 CFR 20.103(a)(1).

10 CFR 20.101, "Exposure of individuals to radiation in restricted areas," requires that no licensee possess, use or transfer licensed material in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter a dose in excess of three rem to the whole body, or 18 3/4 rem to the hands and forearms, or 7½ rem to the skin of the whole body.

Contrary to the above:

- A. From 1100 hours on March 28, 1979, until the afternoon of March 30, 1979, the doors to the auxiliary building were not locked and access was not otherwise controlled even though the building was known to be a high radiation area with radiation levels much greater than 1000 mrem/hr during this period;
- B. From the evening of March 28, 1979, until the evening of March 29, 1979, at least two entries into the auxiliary building were made by individuals who were not equipped with a radiation monitoring device which continuously indicated the dose rate;
- C. No measurements were made of the concentrations of airborne radioactive materials in the Unit 2 auxiliary building for periods during which individuals were exposed from 1100 hours on March 28, 1979, through midnight, March 30, 1979, nor in the Unit 1 nuclear sample room and primary chemistry laboratory for periods during which individuals were exposed from 0400 hours on March 28 through 0800 hours on March 30, 1979;
- D. On March 29, 1979, an Auxiliary Operator was permitted to enter areas of the auxiliary building where exposure rates of up to 100 R/hr existed. Radiation survey information and appropriate personnel monitoring were not provided to the operator for this entry. This contributed to the operator receiving a whole body dose of 3.170 rems. When this dose was added to the operator's previous dose for the quarter, the operator's quarterly whole body dose was 3.870 rems as measured by personnel dosimetry devices;
- E. On March 29, 1979, a Nuclear Engineer entered an area of the auxiliary building where the radiation level was greater than that which could be measured by his portable survey instrument (2R/hr). Failure to perform a survey of the exposure rate in this area contributed to the individual receiving a whole body dose of 3.14 rems for this entry. When this dose was added to the engineer's previous dose for the quarter, the engineer's quarterly whole body dose was 4.175 rems as measured by personnel dosimetry devices;
- F. On March 29, 1979, a Chemistry Foreman was permitted to repeatedly enter high radiation areas and handle samples of highly radioactive reactor coolant. This contributed to the Foreman receiving a whole body dose of 4.100 rems. When this dose was added to the Foreman's previous dose for the quarter, the Foreman's quarterly whole body dose was 4.115 rems as measured by personnel dosimetry devices;
- G. On March 29, 1979, a Chemistry Foreman and a Radiation Protection Foreman were permitted to handle a highly radioactive reactor coolant sample without adequate personnel monitoring and without first performing a survey of hand and forearm exposure rates. Handling of this sample resulted in a calculated dose to the hands and forearms of the Chemistry Foreman of about 147 rems and a calculated dose to the hands and forearms of the Radiation Protection Foreman in the range of 44 to 54 rems; and

- H. On March 28, and March 29, 1979, several individuals received skin contamination of the hand and other parts of the body sufficient to cause exposure rates in the range of 20-100 mR/hr when measured with a hand-held survey instrument and no evaluation of the dose to the skin of these individuals was made.

Each day constitutes a separate violation, [March 28 (A, B, C and H), March 29 (A, B, C, D, E, F, G, and H), March 30 (A and C)]; a civil penalty of \$5,000 is imposed for each. (Cumulative Civil Penalty \$15,000)

Evaluation of Licensee Response

- A. The response to example 2.A admits noncompliance but argues that the overall access control program was reasonable under the circumstances and was in conformance with 10 CFR 20. 10 CFR 20.203(c)(2)(iii) requires positive control over each individual entry. NUREG 0600 (pages II-3-34, 35, 54, 57, 70 and 71) establishes that such control was not exercised. The NRC continues to believe that, with the resources available, additional measures could and should have been taken to better control access to high radiation areas. The commitment for corrective action does not state specific changes to be made to the health physics program to improve access control nor does it state the date when full compliance will be achieved.
- B. The response to example 2.B admits noncompliance but requests remission or mitigation of the proposed penalty since the number of instruments available was insufficient to meet demand. The response also states that each individual entering the Auxiliary Building had "some awareness of information on dose rates" based on previous surveys and the number of individuals overexposed was low and exposures were not significantly above limits. The fact that an insufficient number of instruments was available does not relieve the licensee of responsibility for providing such instruments to individuals entering high radiation areas as required by technical specifications. The fact that more than half of the licensee's survey instruments were out of service for maintenance or calibration undoubtedly contributed to this problem. Informing individuals of previous survey results does not provide protection equivalent to equipping them with a monitoring device as required by Technical Specifications and does not provide adequate protection when radiation levels are as high and variable as they were during the period in question. The NRC does not believe that any of the overexposures which occurred at TMI were justified; and certainly does not accept the statement that there were "few overexposures" as justification for not providing monitoring devices to individuals entering high radiation areas. The response stated that "site monitoring devices will be reevaluated and enhanced as necessary" but did not describe specific steps to be taken nor the date when full compliance will be achieved.
- C. The response to example 2.C denies noncompliance. The denial is based on the licensee's belief that analysis of air samples was impossible due to the loss of counting room facilities, that urgent need for access in some cases justified entries without air samples, that collection of air

samples would have caused unnecessary radiation exposure, and that the evaluation performed met the survey requirements of 10 CFR 20.201(b). Analysis of air samples was possible and should have been done since the concentration of radioactive materials in the air was not known. Such analysis could have been performed initially using the licensee's portable instrumentation and later by NRC and licensee contractor mobile labs which arrived onsite March 28 and 29 respectively. Air samples could have been collected and analyzed without delay of vital entries into the Auxiliary Building and without receipt of excessive radiation exposure. Although 10 CFR 20.201(b) requires surveys to include physical measurements of concentrations of radioactive material only when such measurements are appropriate, such measurements were appropriate in this case and should have been made. The commitment for corrective action states that additional air monitoring equipment is in place, but provides no information regarding the amount of equipment, performance capability, or intended use. The response also states that retraining programs will place additional emphasis on air sampling techniques but the techniques to be emphasized are not described and no information is provided regarding results achieved due to corrective steps taken. The date when full compliance will be achieved is not specified.

- D. The response to example 2.D admits noncompliance but requests remission or mitigation of the proposed penalty based on the licensee's intent to follow sound health physics practices. The circumstances related to the overexposure cited in example 2.D exemplify lack of sound health physics practices. For example, the overexposed individual was not briefed on radiological conditions prior to entering the building, he did not carry a high-range dosimeter, access controls were ineffective for preventing his reentry, even though he was contaminated, and he made a reentry even though his low-range self-reading dosimeter was offscale. Other examples are described in Section 3.2.4.7 of the Investigation Report. Although the licensee suggests otherwise, appropriate instrumentation was not provided since the individual did not have a high-range dosimeter and made a re-entry even though his low-range pocket dosimeter was offscale. Although there was no doubt of the intent on the part of the individual and management to follow sound health physics principles, the individual had not been provided an understanding of health physics principles and management controls were not sufficiently effective to protect him. The response states that certain actions are being taken which could correct this problem such as revisions to Emergency Plan implementing procedures and changes in retraining programs, but the specific steps which have been taken and results achieved, the steps to be taken, and the date when full compliance will be achieved are not stated.
- E. The response to example 2.E admits noncompliance but requests remission or mitigation of the proposed penalty based on the licensee's belief that the entry was vital to public safety and that proper radiological practices were followed to the degree possible. The NRC agrees that the entry was justified but does not agree that proper radiological practices were followed to the degree possible. The two engineers should have promptly exited the auxiliary building when their only high-range survey instrument

failed. Instead, they continued on even though their low-range instrument was frequently "pegged" [radiation levels exceeded the instruments' capabilities]. Although identifying the source of leakage was important, the problem had been recognized for at least 12 hours preceding the entry and the additional delay which would have resulted from exit to replace the failed instrument would not have affected public health or safety. More effective training of radiation workers and radiation chemistry technicians is essential to preventing recurrence of this problem, but the response does not describe specific steps to be taken in this regard nor does it specify the date when full compliance is to be achieved.

- F-G. The response to examples 2.F and 2.G admits noncompliance but requests mitigation or remission based on the licensee's belief that measures taken to minimize exposure were reasonable under the circumstances. Although some planning was done and protective measures were taken which reduced exposure, the planning was not sufficient to anticipate the high dose rates encountered nor to identify the need for extremity monitoring. In addition, the dose received by the Chemistry Foreman during a previous sampling operation was not taken into account when planning the sampling in question. The NRC believes that the overexposures resulting from this sampling were unjustified and could have been prevented by more effective preplanning. The response states that special handling, tools, shielding, and training of chemistry personnel will be provided; however, this commitment lacks specificity and fails to address the more general area of preplanning for all radiological work. No date is specified for full compliance.
- H. The response to items 2.H admits noncompliance and states that dose evaluations have been completed and reports made to the NRC as required. No specific corrective steps were specified for assuring more prompt evaluation of personnel contamination in the future.

Conclusion

The items as stated are items of noncompliance. The information provided in the licensee's response does not provide justification for withdrawing any of the examples of noncompliance cited, nor does it provide justification for remission or mitigation of the proposed penalty. Commitments provided for corrective action are incomplete as discussed. A supplemental response is requested which specifies in greater detail: (1) the corrective steps which have been taken and results achieved; (2) corrective steps which will be taken to avoid further items of noncompliance; and, (3) the date when full compliance will be achieved. This supplemental information is requested for each example listed.

ITEM 3Statement of Noncompliance

Technical Specification 6.5.1, "Plant Operations Review Committee," requires in Section 6.5.1.6.a, that the Plant Operations Review Committee (PORC) review all procedures (and changes thereto) required by Technical Specification 6.8 and any other procedure (or change) determined to affect nuclear safety.

Contrary to the above, inadequate reviews were performed on both Procedure Change Request No. 2-78-707, Revision 4 to Surveillance Procedure 2303-M27A/B, and Procedure Change Request No. 2-78-895, Revision 8 to Surveillance Procedure 2303-M14A/B/C/D/E; both were reviewed and approved by the PORC (November 9, 1978 and August 15, 1978 respectively). Each approved change included a valve lineup which resulted in emergency feedwater header isolation, contrary to Technical Specification 3/4.7.1 requirements.

Each of these inadequate reviews constitutes a separate violation which contributed to an accident; a civil penalty of \$5,000 is imposed for each. (Cumulative Civil Penalty \$10,000)

Evaluation of Licensee Response

The licensee denies this item of noncompliance on the basis that the PORC reviewed the procedure in question and that, as discussed in its response to Item 1, the procedure was not contrary to the requirements of TS 3/4.7.1. While the PORC reviewed each procedure, this review failed to identify the safety significance of changes to the surveillance procedures. Based on IE's evaluation of the noncompliance cited in Item 1 and on a review of the operability requirements of the Emergency Feedwater System, the PORC review was inadequate. The PORC members should have recognized that implementation of Surveillance Procedure 2303-M27A/B or 2303-M14A/B/C/D/E would result in emergency feedwater header isolation, contrary to technical specifications.

The licensee asserts that changes to the surveillance procedures were made to take into account unnecessary thermal shock to the emergency feedwater nozzles and to obtain repeatable results for tests required by the ASME Code. While Metropolitan Edison's motives to reduce thermal shock to these nozzles and obtain repeatable test results may have merit, this does not absolve the licensee of the responsibility to conduct operations in accordance with regulatory requirements.

Conclusion

The item, as stated, is an item of noncompliance. The information provided by the licensee does not provide a basis for modification of the enforcement action.

The licensee should address in a supplemental response the actions to be taken to assure PORC members have the necessary technical expertise to demonstrate a

clear understanding of the implications of TS requirements and system operability requirements as stated in the TS and FSAR. The specific further examples of similar test procedures contained in the response of the licensee should be included in the review of procedures planned by the licensee.

The licensee should also address an appropriate target date for the completion of these reviews.

ITEM 4.AStatement of Noncompliance

Technical Specification 6.8, "Procedures," requires in Section 6.8.1 that procedures be established, implemented and maintained covering identified activities.

Emergency Procedure 2202-1.5, "Pressurizer System Failure," Revision 3, requires in Section A.2.B.1 that electromatic relief isolation valve RC-R2 be closed if, among other things, the valve discharge line temperature exceeds the normal 130°F.

Contrary to the above, the electromatic relief valve discharge line temperature had been in the range of 180°-200°F since October of 1978 and isolation valve RC-R2 was not closed as of 0400 hours on March 28, 1979. Additionally, on March 28, 1979, the discharge line temperature of 283°F was noted at 0521 hours, but the isolation valve RC-R2 was not closed until 0619 hours, allowing a significant loss of RC inventory.

Each day the plant operated in noncompliance with this procedure constitutes a separate violation, a civil penalty of \$5,000 is imposed for each. (Cumulative Civil Penalty \$630,000)

Evaluation of Licensee Response

[RC-R2 should read RC-V2 in the Statement of Noncompliance. This typographical error also appeared in the October 25, 1979 letter.]

The licensee denies this item of noncompliance. The basis for this denial is their assertion that the existence of one or more "symptoms" as listed in an emergency procedure does not call for implementation of the associated immediate and followup actions. The licensee also asserts that such implementation would be contrary to the understanding of Metropolitan Edison personnel at the time of the accident.

Interviews and discussions with plant personnel during the course of the investigation did not demonstrate a generally accepted understanding by the TH1 staff that symptoms do not require implementation of the emergency procedures or that all symptoms must exist before any actions are taken. The identification of a single symptom is, as noted in the licensee's response, a signal that conditions should be examined to determine whether a problem exists. It is this examination which allows the operator to implement all of the appropriate procedures to insure that plant safety is maintained, and that license requirements are not violated. The fundamental method of determining whether the PORV was leaking is the only immediate action stated in the Emergency Procedure: shut RC-V2. The position stated by the licensee that no action is required after the identification of a "symptom" or an abnormal condition is not consistent with operator training nor is it consistent with a conservative approach to nuclear safety. Licensees are required under emergency procedures implementing TS to insure that abnormal conditions will be identified, evaluated, and as appropriate, corrected.

In any event, of the 4 symptoms listed in Emergency Procedure 2202-1.5, 3 were identified by plant operators prior to the accident, NUREG 0600, Section 1.2.4. These 4 symptoms were identified, and deliberate operator actions were taken based upon existing pressurizer system conditions. However, Emergency Procedure 2202-1.5 was not followed.

1. Symptom 1 of a leaking PORV is a high valve discharge line temperature. The licensee admits that the relief valve discharge temperature exceeded the 130°F normal temperature during the October 1978 to March 1979 period. The licensee asserts that the PORV was not leaking during the October-January period, and that the high temperature was caused by a leaking code relief valve (RV1A). However, even if this determination was correct, the licensee failed to follow the Emergency Procedure in that the high temperatures were not placed on the Analog Trend Recorder.

Metropolitan Edison further asserts that these high temperature readings were due to plant design (conductive heating and temperature sensor location).^{*} The licensee is responsible for insuring that all procedures are consistent with plant design in order to assure safe operation. The licensee's assertion leads to the untenable position that plant procedures could not be followed due to plant design.

2. Symptom 2 of a leaking PORV (RC-R2) is RC drain tank pressure above normal. This symptom also existed prior to the accident. The operators were operating the RCDT transfer pump continuously to maintain the RCDT temperature (and pressure) at ambient conditions with apparent valve leakage into the tank. This continuous operation of the drain pump was another indication that a problem existed.
3. Symptom 3 of a leaking PORV (RC-R2) is RC System makeup flow above normal for the variable letdown flow and RC pump seal in-leakage conditions. This symptom was indicated by the frequent transfer of reactor coolant between the RCDT and the Make-Up Tank. This third condition also existed prior to the accident.
4. Symptom 4 of a leaking PORV (RC-R2) is boric acid concentration continually increasing in the pressurizer. While not identified in NUREG 0600, in order to equalize boron concentration, pressurizer water was being recirculated through the spray valve. Even though all of these symptoms existed simultaneously and were identified prior to the accident, the proper procedure (Emergency Procedure 2202-1.5) was not followed.

Prior to the accident the PORV discharge temperature was approximately 180°F. This condition exceeds the normal (130°F) by approximately 50°F. The operators expected to see this temperature above normal without taking action as specified

^{*} Considering the pressurizer temperature necessary to maintain the reactor coolant pressure conditions the licensee uses to support its conductive heating theory, we conclude that conductive heating is an unlikely explanation of the PORV discharge line temperatures for the period from October 1978 to March 1979.

in Emergency Procedure 2202-1.5. As outlined in Appendix I-A of NUREG 0600, at about +3 seconds into the accident sequence the reactor coolant drain tank pressure began to increase. The PORV opened at approximately +6 seconds, and at approximately +13 seconds should have shut. At +30 seconds the reactor pressure decreased to the low-pressure-trip setpoint (1940 psig) and the PORV discharge temperature reached 239°F. This temperature was not placed on the trend recorder; an action which would have helped in identifying an open PORV. At +14 minutes, the reactor coolant drain tank [RCDT] rupture disc blew out and the reactor building pressure increased. Despite these conditions, all of which indicated an open PORV, no action was taken to shut RC-V2 until 2 hours and 18 minutes into the accident.

The licensee also asserts that there is no indication that this procedure or the history of pilot-operated (electromatic) relief valve [PORV] discharge line temperature delayed recognition that the PORV had stuck open during the course of the accident. Shutting the relief isolation valve early in the accident could have prevented the accident entirely, reducing it to an operational transient. There is a clear indication that recognition of an open PORV was delayed in part by the past history of the discharge line temperature in that the Emergency Procedure had not been implemented. Much of the response of the licensee addressed those many valid technical reasons which should have prompted a review and revision to the applicable emergency procedure to make it appropriate to the existing plant conditions. Those revisions were not made, and therefore, the procedure was ignored rather than implemented.

As addressed in the investigation report, it was recognized that there is a certain commonality between a leaking PORV and a leaking safety valve (pp I-1 5,6); however, the appropriate diagnostic actions to differentiate between symptoms including the use of the analog trend recorders were also not initiated. The licensee, in its response, refers to the findings of the President's Commission on the Accident at Three Mile Island, specifically, the Technical Staff Analysis Report on Technical Assessment of Operating, Abnormal, and Emergency Procedures (October 1979). A review of the referenced document (page 15) shows that the Presidential Commission also concluded that the symptoms described above require closure of the PORV isolation valve.

Conclusion

The item, as stated, is an item of noncompliance. The information presented by the licensee does not provide a basis for modification of the enforcement action.

The corrective actions proposed by the licensee to prevent recurrence of similar conditions lack the specificity to permit evaluation. It is understood that the specific revisions to the PORV as regards position indication and leakage determination will be part of the review of the restart proposal for Unit 1 and, at some later date, Unit 2. However, the licensee should address in a supplemental response those steps being taken to assure that changed plant operating conditions will be factored promptly into emergency and operating procedures to assure that such procedures remain appropriate for staff use. Additionally, the actions required upon identification of "symptoms" should be included in this response.

ITEM 4.8Statement of Noncompliance

Technical Specification 6.8, "Procedures," requires in Section 6.8.1 that procedures be established, implemented and maintained covering identified activities.

- B.1. Emergency Procedure 2202-1.3, "Loss of Reactor Coolant/Reactor Coolant System Pressure," Revision 11, requires in Sections B.2.2.3, B.3.6.2 and A.3.2.5: that high pressure injection is initiated on low RCS pressure (1600 psig), and that the operator verify high pressure injection is operating properly as evidenced by flow in all four legs (250 gpm); that flows be maintained at this rate by throttling as RCS pressure drops; and that high pressure injection not be terminated until RCS pressure can be maintained above the reset point (1640 psig) or until low pressure injection flow is established at 3000 gpm.

Contrary to the above:

1. At about 0405 on March 28, 1979, high pressure injection flow was throttled to minimum conditions even though RCS pressure was less than 1600 psi and falling, and without low pressure injection flow established.
 2. At various times throughout the day of March 28, 1979, the high pressure injection system was modified such that the required flow rates were not maintained during continuing low pressure conditions within the RCS following the period when the reactor coolant pumps were stopped and the high pressure injection system was the only mode available for the removal of core decay heat.
- B.2. Emergency Procedure 2202-1.3, "Loss of Reactor Coolant/Reactor Coolant System Pressure," Revision 11, requires certain actions to be taken following the automatic initiation of high pressure injection, including in Section B.3.1, that all ESF equipment is verified to be in its ESF position (capable of performing its intended function).

Contrary to the above, during the period of approximately 0600 hours until 1300 hours on March 28, 1979, during continuing low pressure conditions within the RCS, the Core Flood System was removed from its ESF position (rendered inoperable) by closing both tank isolation valves. [This portion of the ESF was inactivated during a period when reduction of Reactor Coolant System pressure was not the immediate goal. This removed from service this safety feature during a period when it could have been called upon. In the course of the accident while attempting to depressurize to activate the decay heat removal system NRC recognized that it was necessary to isolate the core flood system and encouraged this action. This citation does not apply to isolation during this attempt.]

This violation contributed to an accident. (Civil Penalty \$5,000)

Evaluation of Licensee Response

The licensee denies this item of noncompliance, and responded to each example separately.

The licensee's denial of noncompliance Item 4.B.1 is based upon two premises. The first is that procedural compliance can only be ascertained after determining which procedures were applicable and were in use. The second is that ambiguities and inaccuracies in procedures due to the limits of accident analysis predictions sufficiently confused the interpretation of the situation so as to reasonably justify operator actions.

The matter of procedural compliance must be limited to those procedures applicable to an event. However, the identification of symptoms applicable to different procedures should be followed by evaluation of these symptoms. It is incumbent upon the licensee to insure that these two steps are properly completed. These steps (identification and evaluation) were not properly completed.

The NRC recognizes that there may be ambiguities and inaccuracies in procedures due to limits of accident analysis predictions. It is precisely such concerns over the inability to develop perfect procedures which have produced industry and regulatory requirements on the scope and detail of the training and retraining programs for operating personnel. The Investigation Report identified a number of procedures being implemented almost simultaneously by the operating staff, and as noted in Section I-2 of that report, numerous instances of appropriate completion of procedural requirements. The licensee response indicates a number of such procedural compliance examples and these parallel the findings summarized in the Investigation Report.

The central issue in this example of noncompliance is that the facility experienced a loss of coolant accident, and the operator action to limit HPI flow was not in accordance with TMI Unit 2 Emergency Procedure 2202-1.3, "Loss of Reactor Coolant/Reactor Coolant System Pressure." This procedure (in Section B) lists eight symptoms indicative of a leak or rupture of sufficient size such that the Engineered Safety Features System, including high pressure safety injection, are automatically initiated. Such an automatic initiation did occur at the beginning of the TMI accident. Four of these symptoms existed prior to the time that the reactor fuel became uncovered. These were:

1. Rapid, continuing decrease of reactor coolant pressure;
2. High reactor building ambient temperature;
3. High reactor building sump level; and
4. High reactor building pressure.

The four listed symptoms that did not exist were:

1. Rapidly decreasing make-up tank level;
2. Rapid decrease of pressurizer level;

3. High radiation in the reactor building; and
4. Decreasing core flood tank level and pressure which would not be expected to occur, as the minimum pressure experienced during the early phases of the accident was 660 psi, and the core flood tanks begin to inject at 600 psig.

Thus the evidence available to the operators, in concert with their training in PWR technology, was indicative of a reactor coolant loss.

The Emergency Procedure repeatedly states the necessity of maintaining both pressurizer level and RCS pressure above the 1640 psig safety injection initiation point. Item A.3.2.5, for example, specifically cautions that, if the level cannot be maintained above 200 inches and pressure cannot be maintained above 1640 psig, the plant has suffered a major rupture and requires operation in accordance with the section of the Procedure (Part B) applicable to this condition (emphasis added). This section requires establishing an HPI flow of 250 gpm to each of the four reactor coolant legs (125 gpm if one HPI pump fails to start). Contrary to this requirement, although the pressure remained below 1640 after the first 3 minutes of the accident, the net addition rate to the RCS was reduced to an average of about 25 gpm during most of the first 3½ hours.

The licensee's reply to proposed item of noncompliance 4.B.2 states that the Core Flood Tank isolation valves (CF-VI A and B) were not shut during the period cited (0600 hours until 1300 hours). This response further states that the electrical breakers (normally locked open) must be manually shut before the valves can be shut from the control room. The Investigation Report established (Section 4.5, page I-4-28, and Interviews 95 and 198) that the valves were shut at approximately 0600 hours. This finding is based on testimony of an operations operator and a shift supervisor. The operations operator stated that he broke the locks off of the breakers, and then shut the breakers. This action allowed the Core Flood System isolation valves to be shut from the control room. The shift supervisor stated that he shut these isolation valves from the Control Room.

Conclusion

Item 4.B.1, as stated, is an item of noncompliance. The corrective actions proposed by the licensee appear adequate to preclude recurrence. These procedural reviews and improvements will be subject to review during evaluation of the restart proposal for Unit 1 and, at a later date, Unit 2.

Item 4.B.2, as stated, is an item of noncompliance. The licensee should address in a supplemental response those measures to be taken to insure that the operability requirements of Engineered Safety Features are met during all phases of operation.

The information provided by the licensee for Items 4.B.1 and 4.B.2 does not provide a basis for modification of the enforcement action.

ITEM 4.CStatement of Noncompliance

Technical Specification 6.8, "Procedures," requires in Section 6.8.1 that procedures be established, implemented and maintained covering identified activities.

Operating Procedure 2104-6.2, "Emergency Diesels and Auxiliaries," Revision 9, establishes the procedures for the control of the emergency diesel generators:

1. Section 4.10, "Diesel Generator - Automatic Start Upon Engineered Safety Features Actuation," states in the closing step, 4.10.6, that the unit can be shutdown after the Engineered Safeguards Feature actuation has been cleared.
2. Section 4.6, "Diesel Generator 1A(1B) Shutdown to Emergency Standby," states in the closing step, 4.6.6, to place the diesel generator on standby in accordance with Section 4.2; and
3. Section 4.2, when completed, establishes conditions for automatically starting the diesels upon actuation of an Engineered Safeguards Feature (ESF) including requirements to place the "Emergency Standby/Maintenance Exercise" switch in the Emergency Standby position and resetting the fuel racks.

Contrary to the above, at about 0430 hours on March 28, 1979, both the 1A and 1B diesel generator fuel racks were manually tripped, thereby preventing an automatic start of the diesel generators upon ESF actuation and manual start from the control room until 0949 hours.

This violation had the potential to contribute to an accident. (Civil Penalty \$4,000)

Evaluation of Licensee Response

The licensee admits that the item as described above is an item of noncompliance.

Conclusion

The item as stated is an admitted item of non-compliance. The licensee has not requested mitigation of the Civil Penalty for this item.

ITEM 4.DStatement of Noncompliance

Technical Specification 6.8, "Procedures," requires in Section 6.8.1 that procedures be established, implemented and maintained covering identified activities.

Emergency Procedure 2202-2.2, "Loss of Feedwater," Revision 3, requires in Section 2.B.2.d that the operator adjust feed flow to control steam generator levels at 30 inches.

Contrary to the above, from approximately 0532 hours until 0543 hours, the level in A steam generator decreased to 10 inches (the minimum level indication) while the A steam generator level was being controlled manually.

This is an infraction. (Civil Penalty \$3,000)

Evaluation of Licensee Response

The licensee denies this is an item of noncompliance and bases that denial on the assertion that during the time frame indicated in the item, the referenced procedure did not apply.

The circumstances associated with the noncompliance were reviewed and compared to the requirements of Emergency Procedure 2202-2.2, "Loss of Feedwater."

The assertion in the licensee response that Section 2202-2.2B, "Loss of Main Feedwater Flow to One OTSG" would be the appropriate procedure is not supported since it addresses a loss of main feedwater to a single generator while the Unit is in operation. The condition at the time was the case when no main feedwater was available (both pumps had tripped at the start of the accident). Therefore, Section 2202-2.2A, "Loss of Main Feedwater Flow to Both OTSG's," remains the appropriate procedure.

The licensee correctly points out that the procedural requirement referenced in the item of noncompliance is in that portion of the procedure which is applicable to the case when the loss of main feedwater is due to the feedwater valves closing. However, there is clear indication in both Sections 2.B.1 and 2.B.2 of the goal of maintaining a 30-inch level in the generators when they are being fed (manually or automatically) by the emergency feedwater system. The investigation team considered the failure to maintain the level as the item of noncompliance, not the rate at which level was recovered once it was lost.

Since these actions were involved just at the time of the shutdown of the second pair of reactor coolant pumps, it includes the period of preparation to use the natural circulation mode of cooling, which is controlled by Operating Procedure 2102-3.3, "Decay Heat Removal Via OTSG." Since the operator actions involved in the noncompliance included dealing with a transient situation, and

moving between two sets of procedural controls, the review of this item provides a basis for modification of the proposed enforcement action.

Conclusion

A review of the circumstances and actions involved with this item shows that the licensee failed to maintain the steam generators at the desired level. However, this review showed that this item was not a noncompliance. We are concerned that the licensee failed to maintain a heat sink to provide a means to cool the core. The licensee is requested to address in a supplemental response the actions to be taken, including procedural improvements, to establish the required steam generator water level in all modes of feedwater or emergency feedwater addition.

Item 4.D is withdrawn and the Civil Penalty of \$3,000 is remitted.

ITEM 4.EStatement of Noncompliance

Technical Specification 6.8, "Procedures," requires in Section 6.8.1 that procedures be established, implemented and maintained covering identified activities.

- E. Three Mile Island Nuclear Station Administrative Procedure 1004, "Three Mile Island Emergency Plan 1004," Revision 2, dated February 15, 1978:
1. Requires in Section 2.1 that the "Station Superintendent/Senior Unit Superintendent, Unit Supt/Shift Supervisor/Unit Supt - Technical Support in the Control Room will, after reviewing the emergency conditions, classify the emergency as one of the following:
 - "a. Personnel or Local Emergency,
 - "b. Site Emergency, and
 - "c. General Emergency"

"He will make this classification according to the condition of Table 1 of this plan, and initiate actions according to the Emergency Plan Implementing Procedures, and according to his own best judgement;" and
 2. States in Table 1 of Section 2.1 that a Site Emergency exists when there is a reactor building high range gamma monitor alert alarm (Condition No. e).

Contrary to the above:

1. Adequate written procedures were not established and implemented in that Section 2.1 of Procedure 1004 for implementing the Emergency Plan lacked sufficient specificity and failed to result in a Site Emergency being declared at approximately 0430 on March 28, 1979, even though primary system pressure had decreased to the point where safety injection was automatically initiated and a reactor building sump high level alarm existed; and
2. A site emergency was not declared at 0635 hours on March 28, 1979, at which time Condition "e" of Three Mile Island Emergency Plan 1004 had occurred.

This is an infraction. (Civil Penalty \$4,000)

Evaluation of Licensee Response

The licensee's response to Item 4.E denied noncompliance. Regarding 4.E.1, the licensee admits that greater specificity is needed in emergency plan

implementing procedures but implies the procedures were adequate to meet regulatory requirements. The NRC continues to believe that the procedure did not clearly identify those factors required to declare a site emergency. As a result, the licensee failed to declare an emergency in a timely manner. Technical Specification 6.8 requires that procedures be established covering identified activities. The mere existence of an inadequate procedure does not fulfill this requirement.

Regarding 4.E.2, the licensee argues that the dome monitor alert alarm occurred at 0643 hours instead of 0635 as stated in the Investigation Report and that a site emergency was declared at 0650 instead of 0655. Since it is understandable that different involved individuals recall the time as being a few minutes different in one direction or the other, and since the time differences are so small, the NRC has decided to withdraw this portion of the item of noncompliance. The commitment for corrective action is acceptable except the date for implementation of the revised training drill program is not specified.

Conclusion

Item 4.E.1, as stated, is an item of noncompliance. Item 4.E.2 is withdrawn. The Civil Penalty is partially remitted in the amount of \$2,000.00. The corrective action specified is incomplete in that the date full compliance is to be achieved is not specified. A supplemental response is requested to provide this information.

ITEM 4.FStatement of Noncompliance

Three Mile Island Nuclear Station Health Physics Procedure 1670.9, "Emergency Training and Emergency Drills," Revision 4, dated January 16, 1978:

1. Identifies in Section 3.1, the on-site emergency job categories and requires that training programs for these categories will be conducted on an annual (calendar year) basis; and
2. Describes in Section 3.1.1 through 3.1.9, the training program for all on-site emergency job categories.

Contrary to the above, during calendar year 1978, not all individuals having emergency responsibilities were trained in that two Emergency Directors, one Accident Assessment individual, eight Radiological Monitoring Team Members, and 37 Repair Party Team Members had not received the specified training. In addition on March 28, 1979, during an emergency, at least four individuals who were assigned as required members of a Radiological Monitoring Team and seven individuals who were assigned as required members of a Repair Party Team performed emergency duties for which they were not trained.

This is an infraction. (Civil Penalty \$4,000)

Evaluation of Licensee Response

Although the licensee in its response to item 4.F admits noncompliance and agrees to pay the Civil Penalty, the licensee seemingly minimizes the significance of incomplete emergency training by emphasizing the amount of training which was performed and implying that the incomplete portion did not have a significant adverse affect on performance. The NRC believes that many of the problems associated with the licensee's health physics performance following the accident could have been prevented by more effective training in this area. The commitment for corrective action is acceptable.

Conclusion

The item as stated is an item of noncompliance. The licensee has not requested mitigation of the Civil Penalty for this item.

ITEM 4.GStatement of Noncompliance

Technical Specification 6.8, "Procedures," requires in Section 6.8.1 that procedures be established, implemented and maintained covering identified activities.

Station Administrative Procedure 1002, "Rules for the Protection of Employees Working on Electrical and Mechanical Apparatus," Revision 14, requires in Sections 4.3, 4.4, and 4.5 that on restoration of equipment to service, removed tags will have all required information entered thereon and then be suitably stored, and that the shift foreman shall approve equipment operation by signing the original tagging application. Additionally, Station Corrective Maintenance Procedure 1407-1, Revision 0, specifies in Section 5.0, "Job Ticket (Work Request) Flow," the step-by-step process for initiating, processing, obtaining approvals, and ultimate filing of the "Job Package" which will include, among other things, documentation of corrective action taken (resolution description and certification of satisfactory post maintenance testing) and Station Preventative Maintenance Procedure E-2, "Dielectric Check of Insulation, Motors and Cables," specifies how to make the measurements and contains data sheets for recording the values measured.

Contrary to the above, when inspected on June 20, 1979, the tagging application could not be found for maintenance performed in January 1979, on Emergency Feedwater isolation valves (EF-VI2A, 12B, 32A, 32B, 33A, and 33B). No suitable documentation to determine whether the maintenance work had been completed, tags removed, acceptance criteria met, or valves approved for operation could be found. The TMI-2 maintenance log lists this work request as being in an open status as of June 20, 1979.

This is a deficiency. (Civil Penalty \$2,000)

Evaluation of Licensee Response

The licensee admits that this is an item of noncompliance, and the corrective actions proposed and in force appear adequate pending site followup.

Conclusion

The item is an admitted item of noncompliance. The information provided by the licensee does not provide a basis, nor a request, for modification of this enforcement action.

ITEM 5Statement of Noncompliance

Technical Specification 6.8, "Procedures" requires in Section 6.8.2 that changes to procedures which implement the Emergency Plan shall be reviewed by the Plant Operations Review Committee and approved by the Unit Superintendent prior to implementation.

Contrary to the above, a change to Station Health Physics Procedure 1670.7, "Emergency Assembly, Accountability and Evaluation," was made without the required review and approval. An additional assembly area was designated and the method used to perform accountability was modified by a memorandum dated October 13, 1978, from the Radiation Protection Supervisor to all departments. As a result, on March 28, 1979, in response to an emergency, some licensee personnel followed the approved procedure while others followed the guidance in the October 13, 1978 memorandum, creating some confusion and delaying prompt attainment of full accountability.

This is an infraction. (Civil Penalty \$4,000)

Evaluation of Licensee Response

The response admits noncompliance but requests remission or mitigation based on the licensee's belief that this item did not delay prompt attainment of personnel accountability or cause confusion. The investigators concluded, based on three interviews with site security personnel, that delay and confusion did result from this improper procedure change. See page II-1-21 of the Investigation Report. Regardless of this, the Civil Penalty was based primarily on the fact that Procedure 1670.7 was changed without the required review and approval of the Plant Operations Review Committee and not on whether delay and confusion resulted. The commitments for corrective action are acceptable.

Conclusion

The item as written is an admitted item of noncompliance. The licensee's response does not contain information that would serve as a basis for modification of the proposed enforcement action.

ITEM 6Statement of Noncompliance

Environmental Technical Specification 5.7 requires that detailed written procedures for instrument calibration be prepared and followed.

Three Mile Island Nuclear Station Surveillance Procedure 1302-5.24, Revision 3, dated December 19, 1974, specifies the method of calibration and requires that it be performed annually.

Contrary to the above, as of March 29, 1979, eight environmental samplers had not been calibrated since 1974.

This is an infraction. (Civil Penalty \$4,000)

Evaluation of Licensee Response

The response admits noncompliance but requests remission or mitigation of the proposed penalty since the procedure followed applied only to Unit 1, since a vendor had advised the licensee that calibration was unnecessary, and since NRC had previously classified the matter as an unresolved item in a May 1978 inspection report. The fact that the procedure in question is a Unit 1 procedure is irrelevant since it applied to instrumentation common to Units 1 and 2. Regardless of statements made by vendors, NRC considers that calibration of environmental air samplers is needed and is required at TMI by Environmental Technical Specification 5.7. Upgrading an unresolved item to an item of noncompliance is consistent with NRC enforcement policy and is not considered by NRC as evidence for mitigation. The corrective action commitment is not acceptable because it does not provide a commitment for instrument calibration and does not specify the date by which full compliance will be achieved.

Conclusion

The item as stated is an admitted item of noncompliance. The information provided by the licensee does not provide a basis for modification of this enforcement action. The licensee is requested to submit a supplemental response addressing the areas described in the above evaluation.

ITEM 7Statement of Noncompliance

Technical Specification 6.2, "Organization," states in Section 6.2.1 and 6.2.2 that the unit organization and the organization of the corporate technical support staff shall be as shown on Figure 6.2-1.

Contrary to the above, on March 28, 1979, the organization of the unit and corporate technical support staff was different from that specified in Figure 6.2-1 in that:

- A. A position titled, "Superintendent of Administration and Technical Support" was added to the organization on September 18, 1978 and filled on March 1, 1979, such that the "Supervisor, Radiation Protection and Chemistry," reported to this position rather than directly to the "Station Superintendent/Senior Unit Superintendent," and
- B. There were two "Supervisor of Maintenance" positions, one for each unit, rather than one; and
- C. A position titled "Superintendent of Maintenance" had been added such that the "Supervisors of Maintenance" report to this new position rather than directly to the "Station Superintendent (Station Manager/Senior Unit Superintendent;" and
- D. The position of "Chemical Supervisor" had been vacant since the issuance of the Technical Specifications.

On March 28, 1979 through March 30, 1979, the above organization discrepancies decreased the effectiveness of the licensee's response to the accident.

This is an infraction. (Civil Penalty \$3,000)

Evaluation of Licensee Response

The response admits noncompliance but requests remission or mitigation of the proposed penalty based on the licensee's belief that the organizational changes did not adversely affect its response to the accident and on its belief that the cited changes were discussed with NRC on March 5, 1979. Although it appeared to the investigators that differences between the actual organization and the organization assumed by emergency plan implementing procedures did reduce effectiveness of the licensee's response to the accident, the NRC recognizes that this conclusion is somewhat subjective and acknowledges that these organizational differences may not have had a significant effect on response. In view of the above, the \$3000 penalty proposed in the original Notice of Violation for this item of noncompliance was selected from the bottom of the monetary scale (\$3000-4000) generally followed in the assessment of Civil Penalties for infractions by power reactor licensees. The more important concern here is the licensee's failure to obtain approval of new Technical Specifications prior to making its organizational changes. NRC

Region I does not recall discussing with the licensee the organizational changes cited in this item of noncompliance. In any event, the licensee's organizational changes were contrary to the licensee's existing Technical Specifications and should not have been made prior to obtaining an amendment to these Technical Specifications. As the licensee is surely aware, the Commission's regulations specifically provide that changes to Technical Specifications shall be made through the formal amendment process, not through methods of the licensee's own choosing. See 10 CFR 50.59(c). The corrective actions proposed and underway appear adequate pending NRC completion of its review.

Conclusion

The item as stated is an admitted item of noncompliance. The information provided by the licensee does not provide a basis for modification of this enforcement action.

ITEM 8Statement of Noncompliance

Technical Specification 6.4, "Training," requires that a retraining and replacement training program for the unit staff be maintained that meets or exceeds the requirements and recommendations of Section 5.5 of ANSI N18.1-1971.

Contrary to the above, as of March 28, 1979, a retraining program meeting or exceeding ANSI N18.1-1971 recommendations had not been maintained for members of the radiation protection and chemistry staff in that only 2 of the 10 topics recommended were included in the program.

This is an infraction. (Civil Penalty \$4,000)

Evaluation of Licensee Response

The response denies this item of noncompliance based on the licensee's belief that only two of the ten training areas specified in Section 5.5 of ANSI N18.1-1971 applied to members of the radiation protection and chemistry staff and based on its belief that applying all ten areas to all members of the "operating organization" is contrary to the intent of the ANSI. The NRC agrees that applicability of some of the ten training areas is somewhat limited for some members of the operating organization, but believes that the radiation protection and chemistry staff should receive some training in each of the ten areas. For example: Area #1 specifies training in "Plant startup and shutdown procedures;" such procedures may require technicians to take radiation measurements and coolant samples during startup, but no such training was provided to the technicians.

Area #2 specifies training in "Normal plant operating conditions and procedures;" obviously radiation/chemistry technicians do not need the degree of training in this area that is required for operators; however, a general understanding of systems functions is essential for maintaining effective radiological control over operations and maintenance activities. Similar statements could be made for the remaining eight areas.

The licensee in its response notes that the IE combined Inspection Report 50-239/78-09 and 50-320/78-18 reviewed the general employee, craft and technician training program and identified no items of noncompliance. The fact that no items of noncompliance were found during an NRC inspection does not, and has never, been interpreted to mean that no items of noncompliance existed.

The NRC believes that inadequate training of the radiation protection and chemistry staff was a major contributor to problems identified during the IE investigation and that substantial upgrading of retraining in this area is essential. The commitments for corrective action in this area lacked sufficient specificity. A supplemental response is needed which describes in detail the scope and extent of training to be provided.

Conclusion

The item as stated is an item of noncompliance. The information provided by the licensee does not provide a basis for modification of this enforcement action.

A supplemental response is requested to provide more specific training commitments as discussed above.

ITEM 9Statement of Noncompliance

Technical Specification 3/4.4.6, "Reactor Coolant System Leakage," requires in Section 3.4.5.2, that Reactor Coolant System (RCS) leakage be limited to 1 gallon per minute (GPM) of "Unidentified Leakage," and that unless rates above this limit are reduced to within the limit within four hours, the plant must be placed in "Hot Standby" in the next six hours and in "Cold Shutdown" in the next thirty hours.

Contrary to the above, from March 22, until March 28, 1979, RCS "Unidentified Leakage" remained above 1 gpm, and the plant was not placed in "Cold Shutdown."

Each day constitutes a separate infraction; a civil penalty of \$3,000 is imposed for each. (Cumulative Civil Penalty \$21,000)

Evaluation of Licensee Response

The licensee admits the item of noncompliance. The corrective actions proposed and underway appear adequate.

Conclusion

The item is an admitted item of noncompliance. The licensee has not requested mitigation of the Civil Penalty for this item.

ITEM 10Statement of Noncompliance

10 CFR 20.401, "Records of surveys, radiation monitoring, and disposal," requires in Section (a) that each licensee maintain records showing the radiation exposure for all individuals for whom personnel monitoring is required on a Form NRC-5 or equivalent and in Section (b) requires that each licensee maintain records of the results of surveys required by 10 CFR 20.201(b).

Contrary to the above:

- A. The results of approximately 500 ground level radiation surveys conducted during March 28-30, 1979 in offsite areas bordering the Three Mile Island site were not documented in a manner which permitted a precise evaluation of the type of radiation (Beta/Gamma) which existed in the environs. Pertinent information such as the type of instrumentation used and whether the end window on the probe was open or closed was not recorded.
- B. The records of the radiation exposure for at least 5 individuals exposed during the period March 1 to 31, 1979 had not been recorded or maintained on a form NRC-5, or equivalent, as of July 5, 1979. Furthermore, as of July 5, 1979 the assessment of their doses had not been completed.

This is an infraction. (Civil Penalty \$4,000)

Evaluation of Licensee Response

- A. The response denies that example 10A is noncompliance based on the licensee's belief that the absence of adequate records did not hamper the real time evaluation of radiological conditions. The licensee admits that the surveys were required by 10 CFR 20.201(b). NRC also believes the surveys were required and thus records of these surveys were also required. Further, the NRC believes that the inadequate survey records hampered the real time as well as the historical evaluation of radiological conditions. Although the licensee states that it was possible to reconstruct the full survey information from the original radioed survey results, the NRC investigation determined that the survey records were inadequate for the reasons stated in NUREG-0600, page II-3-97. The commitment for corrective action is acceptable except that the date when full compliance will be achieved is not specified.
- B. The response admits that example 10B is noncompliance and requests mitigation or remission of the proposed penalty based on the unusually large number of records generated and heavy demands on the individuals processing these records. NRC recognizes that maintaining accurate records was difficult under the circumstances; but this difficulty is not justification for the failure of the licensee to identify and assess the doses of individuals who were known to have significant exposures. The commitment for corrective action is acceptable.

Conclusion

The item, as stated, is an item of noncompliance. The information provided by the licensee does not provide a basis for modification of this enforcement action.

ITEM 11Statement of Noncompliance

10 CFR 50, Appendix B, Criterion X, "Inspection," requires that a program for inspection of activities affecting quality shall be established and executed to verify conformance with documented instructions, procedures and drawings for accomplishing the activity.

Three Mile Island Nuclear Station - Unit 2, Final Safety Analysis Report, Chapter 17.2.15, Section X, requires that the inspection program include random observation of operations and functional testing by individuals independent of the activity being performed.

Procedure GP 4014, "OQA Surveillance Program," Revision 0, requires independent observation of activities affecting quality to verify conformance with established requirements utilizing both inspection and auditing techniques...for compliance with written procedures and the Technical Specifications.

Contrary to the above, as of March 28, 1979, the normal operations surveillance testing activities had not been made subject to random and/or routine inspections by independent methods.

This is an infraction. (Civil Penalty \$3,000)

Evaluation of Licensee Response

The information provided by the licensee is sufficient to justify withdrawing this item as cited.

Conclusion

This item of noncompliance is withdrawn; the associated Civil Penalty is remitted. Metropolitan Edison stated in its response that it is planning to expand its program for inspection of surveillance testing activities. In view of this, a supplemental response is requested which addresses the specific requirements, and methods of implementing these requirements, concerning the inspection of activities as they are performed.