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NIAGARA MOHAWK POWER CORPORATION

NIAGARA  MOHAWK

300 ERIE BOULEVARD WEST

SYRACUSE, N.Y. 13202

WILLIAM J. DONLON  
PRESIDENT

May 4, 1984

Mr. Richard C. DeYoung, Director  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Re: Nine Mile Point Nuclear Station Unit #1  
NRC Civil Penalty - \$80,000  
Docket No. 50-220 EA 83-137  
Nine Mile Point Nuclear Station Unit #2  
NRC Civil Penalty - \$100,000  
Docket No. 50-410 EA 83-137

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Dear Mr. DeYoung:

Your letter of March 20, 1984, contained four enclosures concerning our Nine Mile Point Units 1 and 2, which required response from Niagara Mohawk. This letter provides responses to Enclosures 1 and 2 (Notices of Violation and Proposed Imposition of Civil Penalties). Attachment 1 to this letter provides the information required in connection with Unit 1, and Attachment 2 contains the corresponding information for Unit 2. This information is being provided pursuant to the provision of 10 CFR 2.201. We do not intend to protest the proposed civil penalties pursuant to the provisions of 10 CFR 2.205. Our responses to Enclosures 3 and 4 of your March 20, 1984 letter will be forwarded within the specified time periods.

Your letter also requested that the Chairman of the Board and I meet with you and the Regional Administrator for NRC's Region I to discuss the cited violations and corrective actions being taken. As you know, this meeting was held in your offices in Bethesda on March 27, 1984. From our viewpoint, it was a most productive meeting. During these discussions, we acknowledged our awareness of the need for certain corrective actions and our resolve to deal with these both promptly and effectively.

With respect to Unit 2, we described how, even prior to the NRC Construction Appraisal Team (CAT) Inspection, a review of management capabilities had already been initiated by us. This was to identify the best means to successfully complete the project in full compliance with all quality and safety requirements. This review was conducted by Management Analysis Company (MAC) and resulted in a number of changes to the project. These were detailed in Mr. G. K. Rhode's January 27, 1984 letter to Dr. Thomas E. Murley. Briefly, these changes can be summarized as follows:

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- ° Establishing the position of Project Director with overall responsibility for project design, construction, and preliminary and pre-operational testing. This position has been filled by a highly qualified and experienced individual who is physically located at the construction site.
- ° Enhancing the management interface between Niagara Mohawk and Stone and Webster by establishing a Stone and Webster Project Director reporting directly to the Niagara Mohawk Project Director. This position has been filled by relocating the Stone and Webster Manager of Projects to the site. In addition, certain functional groups which were heretofore situated in Syracuse, were physically relocated to the construction site.
- ° Strengthening the Project organization by adding several highly qualified and experienced individuals from MAC into the project to fill key management positions.
- ° Strengthening the construction QA organization with the addition of a highly qualified and experienced QA Manager and several additional QA specialists. As part of this effort, strengthening of formal quality engineering and site audit functions has been instituted. Their primary purposes include quality planning, resolution of quality problems and site quality audits.

Obviously, a strong experienced project management organization is a key factor in assuring full compliance with quality and safety standards. Additionally, we stated to you our intention to establish and maintain quality goals which strive for high standards of excellence. We also stated our intent to upgrade our auditing role, as licensee, over all quality activities being performed, including those of key contractors. These enhancements are well underway through the combined efforts of the newly-strengthened construction QA organization and the new project management team.

With respect to Unit 1, we provided you with similar assurances that all safety related activities at this station will be properly managed and controlled. We too have been concerned by certain performance indicators immediately following the lengthy and very demanding piping replacement outage, most of which involved first-of-a-kind type work. This experience is in sharp contrast with the excellent operating records this station has achieved over the years. A number of steps were taken to reverse this recent trend which were described to Region I representatives at a November 15, 1983 Enforcement Conference. Subsequently, the Senior Vice President - Nuclear has directed management and supervisory personnel to arrange to devote more time inplant with greater direct oversight of the various operations being performed. We are also continuing to review the merits of incentive/penalty programs as a possible means to avoid, or at least reduce, the occurrence of violations and nonconformances. We will keep you advised of any decisions which may be made in this regard.

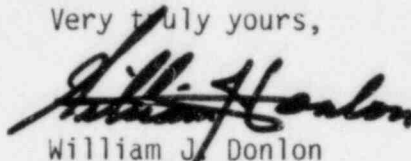
Mr. Richard C. DeYoung  
Page 3

We would like to assure you again that Niagara Mohawk welcomes the independent appraisal of site and corporate management and their functions because we share your desire that this station achieve a high level of performance excellence.

Niagara Mohawk representatives of all levels, including the Chairman of the Board and myself, welcome continuing discussions of our nuclear activities, including progress being made to resolve your concerns. We believe it would be useful to encourage these types of interfaces so that all parties are informed and assured of the effectiveness of our programs. To this end, I intend to personally interface with Dr. Thomas Murley of your Region I King of Prussia office.

Despite the above-described corrective and preventive actions taken by this Corporation both before and after its receipt of the Notices of Violation, as previously stated, Niagara Mohawk Power Corporation does not intend to protest the civil penalties imposed. Accordingly, please find enclosed this Corporation's check in the amount of \$180,000, representing payment in full of the above-captioned civil penalties.

Very truly yours,



William J. Donlon  
President

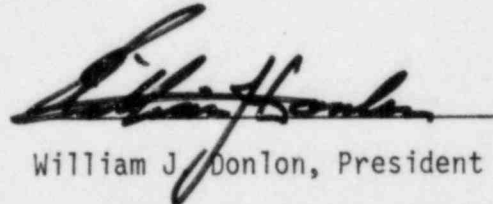
xc: Dr. Thomas Murley  
Region I, US NRC

STATE OF NEW YORK )

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COUNTY OF ONONDAGA)

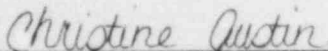
On this 4th day of May, 1984, before me personally came WILLIAM J. DONLON, to me known, who being duly sworn did depose and say that he resides at 8336 Craine Drive, Manlius, New York 13104, that he is the President of Niagara Mohawk Power Corporation, that he has read Attachment 1 and Attachment 2 (A-H thereof), and that the statements made therein are true to the best of his knowledge, information and belief.



William J. Donlon, President

NIAGARA MOHAWK POWER CORPORATION

Subscribed, acknowledged  
and sworn to before me this  
4th day of May, 1984



Notary Public

**CHRISTINE AUSTIN**  
Notary Public in the State of New York  
Qualified in Onondaga Co. No. 4787687  
My Commission Expires March 30, 1985



## ATTACHMENT 1

This attachment provides a response to the Notice of Violation for Unit 1.

A. The alleged violation was stated as follows:

Technical Specification Limiting Condition for Operation 3.3.0 requires primary containment integrity be maintained whenever the reactor is critical. Section 1.11 of the Technical Specifications defines containment integrity and specifies as one of its conditions that all nonautomatic primary containment isolation valves be closed, if not required to be open for plant operation.

Contrary to the above, from June 29, 1983, until October 17, 1983, while the Unit 1 reactor was critical and at 100% power, primary containment integrity was not maintained in that a nonautomatic primary containment isolation valve on a test connection for torus water level transmitter LT-58-04 was open, and this valve is not required to be open during plant operations.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk concurs that a Technical Specification limiting condition for operation was violated by failing to maintain closed a non-automatic primary containment test connection isolation valve which is not required to be open for operation. We believe that the test connection isolation valve was left open as a result of a lack of description of specific steps necessary to carry out the return to service section of the surveillance procedure.

Corrective and preventive actions being taken are as follows:

1. The surveillance procedure has been revised to require that the valve be wire sealed closed and a pipe cap installed as part of the return to service section.
2. Separate verification requirements that all valves for both torus water level transmitters are in the in-service condition have been added to the "Pre-Startup Valve Line-up Check."

3. A special training program has been developed and is being implemented to stress the adherence to Technical Specifications. This training is being provided to operators, instrument and control technicians, chemistry technicians, maintenance personnel, radwaste operators and fire brigade personnel. This training program is approximately 80 percent complete.
4. Niagara Mohawk has initiated an overall analysis of our corporate and station organization which will be discussed in detail in our response to your order.

In particular reference to this notice of violation, Niagara Mohawk has retained an independent consultant (Pickard, Lowe and Garrick, Inc.) with experience in the field of reviewing operating procedures and technical specifications, to conduct a specific review of the Unit 1 Technical Specifications and Surveillance Procedures. Following the completion of the review, a final report will be issued which will address the following tasks and issues:

- a. An index of the Nine Mile Point 1 surveillance requirements and associated test procedures.
- b. A cross-reference index of the surveillance test procedures and the associated components in the frontline and support systems which must be demonstrated as operable.
- c. A listing of specific areas in the surveillance test procedures where additions and/or changes need to be made.
- d. A listing of deficiencies in the current surveillance requirements as determined by review of the associated LCOs.
- e. A listing of omissions or errors in the current test procedures, including:
  1. Inadequacies in the procedures used to demonstrate component/system operability.

2. Inadequacies in the removal/return-to-service instructions.

- f. Recommended actions to correct the deficiencies identified in Items c through e.

Niagara Mohawk will carefully review all recommendations of the report and take appropriate action in connection with its recommendations.

B. The alleged violation was stated as follows:

Technical Specification Surveillance Requirement 4.2.7(a) requires that at least once per operating cycle, the reactor coolant system isolation valves shall be tested for closure times.

Contrary to the above,

- a. From June 1973 until July 1983, a period of time covering five operating cycles over ten years, valve 39-05, a reactor coolant system isolation valve on the condensate return line of the No. 11 Emergency Condenser, had not been tested for closure time.
- b. From June 1973 until November 1983, a period of time covering five operating cycles over ten years, valve 39-06, a reactor coolant system isolation valve on the condensate return line of the No. 12 Emergency Condenser, had not been tested for closure time.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk concurs with the conclusion that a Technical Specification Surveillance Requirement was violated by failing to document that closure time is within 60 seconds for valves 39-05 and 39-06. This violation is a result of misinterpretation of Technical Specifications for automatic initiation of these particular normally closed isolation valves with automatic isolation. Normally open power operated isolation valves have been tested in the closed direction and, therefore, the emergency condenser return valves which are normally closed have been tested in the open direction which is one of their automatic functions. In other words, the primary function of this valve is to open during an emergency, not to serve as an isolation valve. Initial procedures written by the plant staff emphasized the importance of opening times for the following reasons:

1. During 100% power operation, the Emergency Condenser condensate return valve [39-05 (06)] and associated redundant isolation check valves are in the closed position, which meets Technical Specification 3.2.7.b for isolation valves. If any Emergency Condenser line break were to occur during normal operations, the valves are already in their isolation position.
2. Loss of control or motive power will cause the Emergency Condenser condensate return valves [39-05 (06)] to open, regardless of any Emergency Condenser isolation signal providing a fail safe condition for initiation. The redundant isolation check valves provide a fail safe condition for isolation.

Corrective and preventive actions being taken are as follows:

The surveillance procedure has been revised to require testing of the valve stroke time in both the open and closed directions. This revision encompasses the existing Technical Specifications Surveillance Test requirements.

In order to prevent recurrence of this or a similar violation, Niagara Mohawk has initiated the action identified in Items 3 and 4 for Response A above. In addition, Administrative Procedure APN-3, "Site Operations Review Committee Procedures," was revised on December 7, 1983 to include an additional requirement that procedure revisions are reviewed to ensure compliance with Technical Specifications. The requirement of the reviewers initials and the review date on the document review form assures this requirement is met. The Pickard, Lowe and Garrick review will produce a cross referenced list of Technical Specification surveillance requirements and surveillance procedures to aid the Site Operations Review Committee in this review.

#### SCHEDULE FOR ACHIEVING FULL COMPLIANCE

Pickard, Lowe and Garrick estimates that the review is approximately 90% complete and is expected to be completed by the end of May 1984. Should any further procedural inconsistencies be discovered, the NRC will be notified via the requirements of 10CFR50.73. Recommended procedure revisions identified by

Pickard, Lowe and Garrick to improve clarity and to specify instructions for precise return to "normal" conditions where required, will be completed by November 30, 1984. This date is considered reasonable because of the need for thorough review by the Technical staff and the Site Operations Review Committee.



## ATTACHMENT 2

This attachment provides responses to the alleged violations identified in the Notice of Violation for Unit 2.

The following information responds to the specific allegations of violations of eight criteria of 10CFR50, Appendix B. In order to better understand the responses, the actions taken immediately after the CAT Inspections, and the process presently underway, the following background is furnished:

Subsequent to the exit interview held with the CAT Inspection Team on December 9, 1983, Niagara Mohawk established several task groups composed of senior management and supervisory personnel to review the deficiencies and concerns identified during the course of the CAT Inspection. These teams evaluated these deficiencies and concerns to identify causes and establish action plans for corrective and preventive actions. In addition, these teams evaluated the indicated deficiencies for generic implications and, where appropriate, established action plans to prevent reoccurrence. Immediate corrective actions were instituted where appropriate. When the CAT Inspection Report was received on February 2, 1984, the findings cited therein were compared to the actions already initiated subsequent to the exit interview. This review resulted in the establishment of additional action plans. These action plans are being updated to reflect planned activities.

For clarification, the format used in responding to each alleged violation is as follows:

1. The wording of the allegation of violation, including examples, has been repeated.
2. Niagara Mohawk's position regarding the alleged violation has been summarized following the statement "Niagara Mohawk's response to the alleged violation is as follows:"
3. The reasons for Niagara Mohawk's position on the alleged violation is summarized under the heading "The reasons for the alleged violation were determined to be:"

4. The corrective and preventive action related to each example including current status and results to date is provided.
5. Following the corrective and preventive actions for the last example, generic corrective and/or preventive actions are provided at the alleged violation level above and beyond the specific examples, when required.
6. The date when full compliance will be achieved is given at the end of each section. The date(s) indicated relate to the specific commitments indicated in the responses. When the response states direction will be provided by Niagara Mohawk, this will occur prior to the date indicated and the resulting implementation of the direction will be ongoing.

Niagara Mohawk believes that these actions, along with the successful conclusion of the action plans, will provide effective corrective and preventive actions for the deficiencies identified in the CAT Report and the Notice of Violation.

The following sections address each alleged violation.

A. The alleged violation was stated as follows:

10CFR Part 50, Appendix B, Criterion III requires, in part, "The design control measures shall provide for verifying or checking the adequacy of design...by the performance of a suitable testing program...Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design..."

Niagara Mohawk Power Corp.'s Quality Assurance Manual, Section 3 implements 10CFR Part 50, Appendix B, Criterion III.

Contrary to the above, the licensee has failed to meet the requirements of Criterion III as exemplified by the following examples:

1. Failure to review design changes in a manner commensurate with the original design review. This is reflected by the high percentage (30%-40%) of design change documents issued to correct errors or to provide additional information that should have been provided on previously issued design changes.
2. Failure to perform prequalification tests for the installation of concrete anchor bolts under the most adverse design conditions. The concrete anchor bolts were tested in a 1000 psi concrete mix, rather than a minimum 3000 psi concrete mix which is the concrete mix most representative of field conditions.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine the reasons and the extent to which these examples are representative of overall program or implementation weaknesses. Niagara Mohawk had concluded that the Unit 2 design control measures were consistent with our interpretation of the requirements of Criterion III. However, since it is clear that Niagara Mohawk's interpretation is different from the NRC's as expressed in the CAT Report, and since the NRC has identified specific concerns regarding design control measures, Niagara Mohawk has taken action to address these concerns. The following paragraphs explain our position and describe the actions taken to address the concerns identified in the CAT Report.

The reasons in support of Niagara Mohawk's position are as follows:

Design Changes - Related to Example 1

The Unit 2 Project does have programs in effect that provide for verifying or checking the adequacy of the design. Design changes, including field design changes, are subject to control measures commensurate with those applied to the original design. The changes generally do not involve design errors. Rather, they are issued to provide additional information not available when the change was issued and/or to resolve holds on previously issued design change documents.

However, past practices and timing of drawing issues did not always result in issuance of design drawings sufficiently in advance of the work commencing to allow time to issue a revised drawing to reflect needed changes.

Prequalification Testing - Related to Example 2

With regard to the pre-qualification tests for the installation of the concrete anchor bolts, we did not consider this to be an inadequate testing program under Criterion III.

Pre-qualification tests for concrete anchor bolts were performed in a 1,000 psi design mix for installation of bolts in 3,000 psi concrete\*. An engineering evaluation by Stone and Webster concluded that installation torques developed from testing with the 1,000 psi concrete would ensure that the anchors are properly set and will meet the intended design function.

The purpose of the pre-qualification test was to ensure that the installation procedure results in acceptable displacement characteristics and pull-out capacities of the anchors. These pre-qualification tests were performed in 1,000 psi concrete which was determined to be representative of concrete used at Unit 2 for the factors that are significant in determining the anchor capabilities. The difference between the two mixes is in the amount of cement and fine aggregate used. The coarse aggregate content is essentially the same (within 6%).

NOTE: \*The designation 1,000 psi or 3,000 psi design mix denotes the value used by engineering in the design of concrete structures. The actual values of compressive strength tests was an average of 2,800 psi for the 1,000 psi mix and an approximate average of 4,400 psi for the 3,000 psi mix.

Additional tests were performed on 3/4 inch diameter anchors since a number of anchors were turning during installation using the pre-qualification torque value. Six anchors were installed in 3,000 psi concrete using a lower installation torque. Anchors were tensioned to 150% of the design load and no slippage was observed.

Corrective and preventive actions are as follows:

Example 1: Failure to review design changes in a manner commensurate with the original design review. This is reflected by the high percentage (30%-40%) of design change documents issued to correct errors or to provide additional information that should have been provided on previously issued design changes.

While Niagara Mohawk does not agree that the problem of design errors is extensive, it is important that the number of erroneous changes be kept to a minimum. An evaluation is being performed to determine where actions can be taken to more accurately identify the cause of changes as well as methods which can be established to assure that actions are taken where required.

In the future additional detailed reviews are planned at the construction site sufficiently in advance of work being performed to allow identification of changes which were previously identified on ACNs or E&DCRs and incorporate these changes into revised drawings before the work starts, where practical. Additionally, studies are currently being conducted regarding the transfer of certain design activities such as small bore piping design and seismic conduit design to the construction site. Transfer of these design activities will allow for even more rapid updating of drawings as well as improved identification of problem areas.



The Project Engineer has issued a memorandum to appropriate Stone and Webster Engineering personnel to discontinue the practice of issuing E&DCRs that revise only parts of previously issued E&DCR's. Should changes to previous E&DCRs be required, they will be implemented by cancelling or replacing the previous E&DCR in its entirety by another E&DCR. The information in the memorandum will be reflected in a revised Project Procedure.

Example 2: Failure to perform prequalification tests for the installation of concrete anchor bolts under the most adverse design conditions. The concrete anchor bolts were tested in a 1000 psi concrete mix, rather than a minimum 3000 psi concrete mix which is the concrete mix most representative of field conditions.

Subsequent to the CAT Inspection, verification tests were performed on bolts which had been installed in 3,000 psi concrete using installation torques developed from the pre-qualification tests. Twelve bolts, which were randomly selected based on installation dates and contractors, were tension tested to the allowable design load. All tests were witnessed by an NRC Inspector. Under the test load, there were no measurable displacements of the bolts. Therefore, all 12 bolts tested were acceptable.

Based on tests performed for installation of concrete anchor bolts in both 3,000 psi and 1,000 psi concrete, we believe that the bolts are properly set. Loss of preload observed by the NRC Inspectors is characteristic of expansion type anchors and is accounted for by design.

The date when full compliance will be achieved:

June 15, 1984

B. The alleged violation was stated as follows:

10CFR Part 50, Appendix B, Criterion V requires, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions...shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Niagara Mohawk Power Corporation Quality Assurance Manual, Section 5, implements 10 CFR Part 50, Appendix B, Criterion V.

Contrary to the above, the licensee has failed to meet the requirements of Criterion V as exemplified by the following examples:

1. The review of radiographs indicates that ITT Grinnell radiographic interpreters are not adequately evaluating radiographs of piping welds. Twelve piping welds requiring radiographic inspection failed to satisfy the requirements for film and weld quality of the applicable ITT Grinnell procedures and ASME Section III and V.
2. Procedures used to accomplish electrical raceway installations, installations of seismically mounted equipment, and Power Generation and Control Complex (PGCC) installations and modifications, were deficient with respect to quantitative and/or qualitative acceptance criteria.
3. Supports and restraints installed by Reactor Controls Incorporated and ITT Grinnell have not been constructed in accordance with design requirements.
4. Adequate procedural controls were not established to assure that Power Generation Control Complex (PGCC) cable and wiring installations would conform to design requirements.
5. ITT Grinnell piping weld liquid penetrant inspections for the Reactor Venting System were not being performed in accordance with the requirements of ASME Section V.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine the reasons and the extent to which these examples are representative of overall program or implementation weaknesses. As a result of this review,

Niagara Mohawk has determined that instructions, procedures, and/or drawings do exist that contain quantitative and/or qualitative acceptance criteria. However, Niagara Mohawk concurs that certain instructions, procedures and/or drawings require revision to assure that the above identified examples do not reoccur.

The reasons for the alleged violation were determined to be:

Certain instructions, procedures, and/or drawings lacked accept/reject criteria for some attributes. Specific attributes to be verified were not identified on some documents (e.g. checklists, inspection plans, and planner packages). Certain training programs did not adequately address all elements (e.g. accept/reject criteria, procedures, instructions and drawings) necessary to perform and accept the work. Instances have been identified where personnel failed to implement approved instructions/procedures.

Additional information on the reasons for the examples cited (where they amplify the reasons for the violation stated above) is provided in the paragraphs below, which address corrective and preventive actions for each example.

Corrective and preventive actions taken are as follows:

Example 1: The review of radiographs indicates that ITT Grinnell radiographic interpreters are not adequately evaluating radiographs of piping welds. Twelve piping welds requiring radiographic inspection failed to satisfy the requirements for film and weld quality of the applicable ITT Grinnell procedures and ASME Section III and V.

The corrective actions taken on the 12 welds identified on Pages IV-5 and IV-6 in the CAT Report are as follows:

Shop Weld 01-21-MSS-150-1-129 SWB

The radiographic data on the reader sheet was correct in that the wall thickness was listed as nominal wall thickness, plus reinforcement of 1/16". However, when using the actual thickness of the weld, the previously accepted porosity was rejected. ITT Grinnell issued N&D IG 1140 to correct the deficiency. N&D IG 1140 was subsequently canceled due to rework required on N&D IG 1627. The results are that the section of pipe that contained the deficient weld will be cut out and replaced.

Shop Weld 57-1-LCS-142-2-2 SWA R/I

A suspected minimum wall deficiency was verified by ultrasonic examination and the density deficiency verified by film review during the CAT Inspection. ITT Grinnell issued N&D IG 1137 to correct these deficiencies. The results are that the weld will be repaired to an acceptable condition and re-radiographed.

Field Weld CSH-25-21-006 R/I

This weld was identified by the CAT Inspector as rejectable for a linear indication associated with a single pore. On review of the film by Niagara Mohawk, it was determined that a linear indication was present. Niagara Mohawk directed that the weld be repaired and re-examined. ITT Grinnell issued DR 5588 to correct this deficiency. The results are that this weld will be repaired to an acceptable condition and re-radiographed.

Field Weld CHS-25-21-007 R/1

This weld was identified by the CAT Inspector as rejectable for an unconsumed insert. ASME Section III, Division I requirements contain no specific accept/reject criteria relating to unconsumed inserts. Due to the lack of specific criteria for this condition, Niagara Mohawk developed criteria based on ASME Section III, Division I, para. NX-4424(e) which deals with abrupt changes in density that produce linear indications. This weld was reviewed by Niagara Mohawk in accordance with this criteria and rejected. Niagara Mohawk directed that the weld be repaired and reexamined. ITT Grinnell issued DR 5587 to correct this deficiency. The results are that the weld will be repaired to an acceptable condition and re-radiographed.

Field Weld RHS-66-38-006 R/1

The same condition (unconsumed insert) existed for this weld as for Field Weld CHS-25-21-007R/1. Niagara Mohawk directed that this weld be repaired and re-examined. ITT Grinnell issued DR 5586 to correct this deficiency. The results are that this weld will be repaired to an acceptable condition and re-radiographed. Subsequently, N&D IG 2130 was issued due to an interference with a duct support which prevents the repair. As documented on N&D IG 2130, the section of pipe which contains the weld will be cut out and replaced.

Field Weld RHS-66-38-004 R/1

Due to missing film in the documentation package, the weld was re-radiographed to complete the package. Review of this film revealed that, because of a foreign substance in the pipe, the acceptability of the weld could not be confirmed. ITT Grinnell issued N&D IG 1336 to correct this deficiency. The results are that the section of pipe containing the weld will be cut out and scrapped. The foreign material will be removed from the pipe. The cut out section of the pipe will be replaced and the welds radiographed.



Field Weld CHS-25-6-009 R/1

Due to missing film, this weld was re-radiographed to complete the documentation package during the CAT Inspection. ITT Grinnell issued DR 5409 to enter this film into the documentation system. The final radiograph indicated the weld was acceptable.

Field Weld RHS-66-39-012 R/1

Due to missing film, this weld was re-radiographed to complete the documentation package. ITT Grinnell issued DR 5408 to enter this film into the documentation system. The final radiograph indicated the weld was acceptable.

Field Weld RHS-66-38-003 R/2

The radiograph for this weld was reviewed by the CAT Inspector and was found acceptable. The CAT Inspector requested the complete documentation package for his review. During this review, it was noted that weld rod requisitions were missing from the package. ITT Grinnell issued DR 5081 to correct this deficiency. The results are that this weld has been removed, replaced, and radiographed. The replacement weld was acceptable.

Field Weld RHS-66-38-005 R/1

The CAT Inspector addressed two areas of concern for this weld. They were incorrect acceptance disposition on one film view, and an incorrect number of radiographic films in the package. The radiographic report was corrected to indicate correct disposition of "accept" on the report, and the weld was completely re-radiographed. ITT Grinnell issued DR 5411 to enter film into the documentation system. The final radiograph indicated the weld was acceptable.

Field Weld CHS-25-13-006

The CAT Inspector requested a thickness measurement be taken to verify a suspected minimum wall violation. The UT Examiner incorrectly recorded the pipe thickness as a 12" Sch. 100 (.844 wall), instead of 10" Sch. 100 (.719" wall) and rejected the weld for a minimum wall violation. ITT Grinnell issued DR 5005 to correct this deficiency before the UT Examiner's error was discovered. The weld was re-examined, and the report was corrected indicating no minimum wall violation. DR 5005 was voided. When the correct minimum wall thickness of .630" was used the condition was acceptable, with the lowest reading being .655".

Shop Weld 47-10-2-FWS-117-4-75 SWE

Attempts to re-radiograph the subject weld during the CAT Inspection resulted in radiographs of different welds due to a miscommunication while trying to expedite resolution of the CAT Inspector's concern. The correct weld was subsequently re-radiographed and determined to be acceptable. This weld was also examined by ultrasonic testing and found acceptable.

Additional corrective actions taken are as follows:

ITT Grinnell performed a review of 1025 field weld radiographs in the vault as of January 19, 1984, utilizing a 14 point checklist. ITT Grinnell issued a report of this review on February 7, 1984, which indicated that 14 radiographic reports were corrected to list code acceptable discontinuities, and that an additional eight welds require re-radiography due to film quality problems. ITT Grinnell issued DRs 5621 through 5628 to correct these eight deficiencies.

In addition to the review performed by ITT Grinnell, Niagara Mohawk performed a review of previously accepted ITT Grinnell field and shop weld radiographs in the vault as of January 19, 1984. The specific radiographs reviewed are identified in Niagara Mohawk's Surveillance Reports. This review identified two additional welds that require repair and twelve (12) additional welds that require re-radiography due to film quality and weld coverage. This review identified additional documentation deficiencies associated with the radiographs.

These reviews and the correction of the deficiencies identified will assure that past welds radiographed by ITT Grinnell are of an acceptable quality.

The problems associated with ITT Grinnell's management of radiographic activities were recognized by Niagara Mohawk prior to the CAT Inspection. In an effort to strengthen the ITT Grinnell QA Program, ITT Grinnell hired a Site QA/QC Director and a NDE Supervisor.

Preventive actions taken are as follows:

ITT Grinnell revised Radiographic Procedure RTP-3-1 to include detailed requirements for radiographic technique and documentation. Training of ITT Grinnell radiographers was also conducted covering the revised procedure requirements.

ITT Grinnell NDE Supervisor or SNT-TC-1A Certified Level III will monitor radiographic personnel to verify that the radiographers are performing in accordance with procedural requirements.

In addition to the above, Niagara Mohawk has increased its Quality Assurance surveillance activities per established surveillance schedules by utilizing checklists that include specific attributes related to the matters discussed above.

Example 2: Procedures used to accomplish electrical raceway installations, installations of seismically mounted equipment, and Power Generation and Control Complex (PGCC) installations and modifications, were deficient with respect to quantitative and/or qualitative acceptance criteria.

The corrective action taken on electrical raceway installations identified on Pages II-2, II-4 and II-5 in the CAT Report are as follows:

Identification of Raceways - As recognized in the CAT Report, the reason for this condition was that documentation indicated that raceway installation was complete when, in fact, permanent identification markers had not been installed. As a result, Specification E061A was revised to require that permanent identification be applied on raceways prior to release for inspection by Field Quality Control (FQC). The placement of permanent identification on those raceways which have been previously accepted is in progress and the permanent identification will be inspected.

Cable Tray Separation: As recognized in the CAT Report, the reason for this condition was that FQC did not utilize the "L" (Later) attribute, as required by procedure, for documenting that the separation barrier was permitted to be installed at a later date, after cable pulling.

Inspection Plan Number N20E061AFA002 has been revised to add a specific attribute for separation barriers and to document an "L" when the separation barriers are not yet installed. Previously issued raceway tickets have been corrected to show the "L" status.

Cable Tray Protrusions: Engineering and Design Coordination Reports (E&DCRs) F01,164 as recognized in the CAT Report and F01,238 have been issued to revise the applicable specification to address the acceptance requirements for protrusions into cable trays. Inspection

plans have been revised to include the requirements for protrusions as inspection attributes. Those HVAC and Fire Protection System safety related mechanical supports which had been previously final inspected, were re-inspected. The re-inspection identified one hanger that did not meet the protrusion requirements. This hanger was reworked to conform to the design requirements.

Preventive actions to be taken are as follows:

For those construction and inspection activities that are allowed to be delayed from the initial installation, the appropriate inspection plan will be developed to define the inspection attributes prior to the start of these activities, and/or the "L" status indicator will be used as required by procedure.

Personnel will be retrained to assure procedural requirements are adhered to and that inspections are not signed off as being complete until all requirements have been satisfied or that procedures are in effect to provide for additional inspections.

The corrective actions taken on installation of seismically mounted equipment identified in Pages II-16 thru II-18 in the CAT Report are as follows:

Switchgear and Motor Control Centers: The shop drawing required SAE J429 Grade 2 bolts. This grade of bolt was not utilized on the units furnished to the Unit 2 Project. The reason for this deficiency was failure of the vendor to supply bolting material meeting his drawing requirement and failure of Procurement Quality Assurance (PQA) to identify that the bolts supplied did not meet the requirement of the drawing. N&D 7334 was issued to identify this deficiency and is presently being dispositioned by Engineering.



Station Batteries and Rack: The seismic qualification report identifies the use of ASTM 307 bolts in the analytical qualification for Unit 2 racks. The vendor did not ensure consistency between the assembly drawing and the seismic qualification report in that the assembly drawing did not require the use of ASTM 307 bolts. The review, in process, of the seismic qualification report indicates that the bolting material is not critical for the qualification of the battery racks, since calculated stresses in the bolts are low. Therefore, the specific identification of the bolts would not have been required on the assembly drawing. However, the vendor will be required to revise the seismic qualification report to identify the acceptability of the use of standard bolts.

Previously approved seismically mounted equipment qualification reports will be reviewed for specific field assembly bolting requirements. All such drawings will be reviewed to ensure consistency with the identified requirements of the qualification report. FQC will sample the field assembly bolting to verify that drawing requirements have been met. Where discrepancies to the qualification reports are identified by Engineering, FQC will re-inspect the field assembly bolting to the requirements of the qualification report. Any deficiencies identified will be corrected.

Preventive actions taken are as follows:

Based on the deficiency related to seismic qualifications, a new Project Procedure PP94, "Review of Changes and Their Effect on Qualification of Class 1E and Seismic Category I and II Equipment", has been issued and is being implemented to prevent this type of deficiency from re-occurring.

PQA inspection plans will be revised to address field assembly bolting material for compliance with drawing requirements.

The corrective/preventive actions taken on the Power Generation and Control Complex (PGCC) identified on Pages II-9 and II-10 of the CAT Report are as follows:

A change to Specification E061A was issued to prescribe separation criteria including the use of duct covers and floor plates as qualified separation barriers in the PGCC, and to establish cable installation and acceptance as a separate and independent program from duct cover installation and acceptance. The applicable inspection requirements of barrier installation will be incorporated into a new inspection plan. Cables in ducts are being inspected in accordance with the GE Wire List, which has been verified as meeting divisional separation.

Inspections of safety related multi-divisional panels and termination cabinets have been performed. Divisional separation nonconformances have been documented and are being evaluated by Engineering. Wiring inspections have been performed and divisional separation nonconformances documented and are being evaluated by Engineering.

Engineering is developing detailed subdivisinal separation instructions for the safety related divisional panels and termination cabinets and is providing these instructions on the C43155 E&DCR series documents. Inspections for subdivisinal separation will be performed. Any subdivisinal separation nonconformances will be documented in accordance with established procedures, prior to releasing those bays having subdivisinal separation requirements for further construction activities.

In addition, Engineering reviewed issued work packages for the panels and termination cabinets having subdivisinal separation requirements, to assure requirements have been adequately defined. Wiring activities were stopped for work packages requiring additional separation instructions. These packages are being corrected as required and the work allowed to resume as released by Engineering with FQC concurrence.

Example 3: Supports and restraints installed by Reactor Controls Incorporated and ITT Grinnell have not been constructed in accordance with design requirements.

The corrective actions taken on the support and restraints identified on Pages III-2 through III-7 and Table III-3 of the CAT Report are as follows:

RCI - Although the CAT Report did not list specific examples for RCI as in the case of ITT Grinnell, it did refer to Sections III and IV of the Report. The corrective actions taken by RCI concerning conformance with design requirements is represented by the action taken regarding the undersized welds as follows:

Nonconformance report (NCR) NMP-083 was generated to document the undersize shop welds found in the Enterprise Control Rod Drive (CRD) structural steel systems fabricated by RCI. The results are that approximately 33% of the welds are undersized. These welds will be reworked to bring the welds into conformance with design requirements. In addition, RCI performed a surveillance check of field welds on the Multi-Function supports and found them to conform with the design requirements.

As a result of CRD support hardware nonconformance reports, one Installation Supervisor has been terminated. Additional training has been provided to supervisory personnel to assure a thorough understanding of responsibilities. Quality Assurance Instructions (QAI) 8-2, 8-3, and 10-1 have been revised and implemented to clarify and enhance the detailed instructions for installation activities and inspection requirements. In addition, training was given to seven QC personnel and installation supervisors to help assure work activities are performed consistent with these requirements.

ITT - For the ITT Grinnell supports identified in Table III-3 which had been inspected, the following actions have been taken:

Support 66G015 - Nonconformance and Disposition Report (N&D) IG-1138 was issued to document the deficiency. The N&D has been dispositioned and the pipe to structure gap was determined to be acceptable based on the fact that at the operating temperature of 40<sup>0</sup>F, a cumulative gap of 0.020 inches will not impact the design function of the item.

Support 71TL - Deviation Report (DR) 5109 was issued to document this deficiency. The DR has been dispositioned to remove the incorrect clamp and install the correct clamp.

Support 66G043 - E&DCR C02128 has been issued to clarify gap requirements. The existing condition of the dead weight support conforms to the clarified design requirements.

Support 71JG - DR 5007 was issued to document this deficiency. The DR has been dispositioned to rework the welds to conform with design requirements.

Support 19GK - DR 5003 was issued to document this deficiency. The DR has been dispositioned to remove the incorrect clevis and pin, and install the correct clevis and pin.

Support 72AV - N&D IG-1210 was issued to document the deficiency. The N&D has been dispositioned and the support has been determined to be acceptable as is because the welds are proper fillet size and the weld length is longer than required. The missing strut rod end spacers have been installed and inspected. It should be noted that this is a non-safety related support.

Support 72VL - N&D 5866 documents this deficiency. The N&D has been dispositioned to rework the pipe clamp and strut to conform with the design requirements. It should be noted that this is a non-safety related support.

Support 66G032 - DR 5000 was issued to document this deficiency. The DR has been dispositioned to rework the support to conform with design requirements.

Support 72MQ - N&D IG-1246 was issued to document this deficiency. The N&D has been dispositioned and the support has been determined to be acceptable as is because under operating conditions, the total relative movement of the pipe is only 1/8".

Supports 19RR, 19RX, 19QX - DR 5829 was issued to correct the gap deficiency with Support 19RX. This support will be shimmed to meet the design requirements. Inspection Reports FU 271 and 1409 were issued to identify the gap deficiencies on Supports 19QX and 19RR. These supports will be reworked to comply with the design requirements.

Preventive actions taken are as follows:

Reactor Controls Incorporated Quality Assurance Instructions (QAI) 8-2, 8-3, and 10-1 have been revised to provide detailed instructions for installation activities and inspection requirements. Seven QC personnel and installation supervisors have been trained to these revised procedures to help assure inspections are adequately performed.

As a result of CRD support hardware nonconformance reports, training has been provided to supervisory personnel to help assure a thorough understanding of acceptance requirements.

ITT Grinnell issued Corrective Action Request, Numbers 611, 617 and 618 which provide for: Verification by Engineering of previously installed items not released for QC inspection; additional training of craft personnel on construction and quality requirements; supplying appropriate measuring



equipment for craft use, evaluation of welders who exhibit above 10% weld reject rate; hiring of additional welding engineers; providing a mock-up depicting various types of welds related to supports.

ITT Grinnell will monitor the reject rates through the quality accountability program (trend) to determine the ongoing effectiveness of corrective actions.

Example 4: Adequate procedural controls were not established to assure that Power Generation Control Complex (PGCC) cable and wiring installations would conform to design requirements.

The corrective and preventive action for this example are as follows:

See Example 2 of this alleged violation for Niagara Mohawk's response for corrective and preventive action.

Example 5: ITT Grinnell piping weld liquid penetrant inspections for the Reactor Venting System were not being performed in accordance with the requirements of ASME Section V.

The corrective actions taken on liquid penetrant examination deficiencies identified on Page IV-4 in the CAT Report are as follows:

The certifications of the liquid penetrant examiners that performed these past examinations were revoked. These individuals will not perform any future liquid penetrant examinations for acceptance of welds at the Unit 2 Site.

Accessible safety related welds previously examined are being re-examined by individuals trained and certified in accordance with training sessions that emphasize that surface preparation is to be in an acceptable condition prior to performing a liquid penetrant examination. As of the ITT Grinnell Report dated April 20, 1984, a total of 1636 welds were re-inspected and 86 of these welds had rejectable indications. The majority of these rejectable indications

were surface imperfections which will not require any repair. It should be noted that magnetic particle examinations may be substituted for the previously performed liquid penetrant examination when allowed by ASME Section III, Division I.

Safety related welds that are not accessible will be identified and receive an engineering evaluation. The engineering evaluation will include consideration of the design function of the welds.

Preventive actions taken are as follows: 

ITT Grinnell's liquid penetrant training and certification program will be revised to emphasize that surface preparation is to be in an acceptable condition prior to performing a liquid penetrant examination.

ITT Grinnell's training and certification procedures will be revised to require the NDE Supervisor or designee to perform a surveillance over the initial liquid penetrant examination for each new employee. This surveillance will be sufficient to establish confidence in the employee's ability to perform a proper liquid penetrant examination. The results of this surveillance will be documented in a memo and included as part of the employee's qualification record.

ITT Grinnell procedures will be revised to require the NDE supervisors or a SNT-TC-1A Certified Level III Examiner to perform an ongoing monitoring program that includes re-examination of previously accepted work.

ITT Grinnell Field QA has a certified Liquid Penetrant Level II Examiner who will perform QA surveillance of the liquid penetrant examination activities.

GENERIC CORRECTIVE ACTIONS TAKEN FOR THE ALLEGED VIOLATION B ARE AS FOLLOWS:

Niagara Mohawk is performing surveillances of site contractors' Non Destructive Examination activities for compliance to ASME Section III and V requirements including the deficiencies identified in the CAT Report. Corrective actions are being taken as appropriate. Niagara Mohawk has streamlined procedures for stop work activities and has exercised these procedures on two occasions recently.

GENERIC PREVENTIVE ACTIONS TAKEN FOR ALLEGED VIOLATION B ARE AS FOLLOWS:

Niagara Mohawk is reviewing new and/or revised quality assurance procedures developed for use on Unit 2 to assure that they contain adequate quantitative and qualitative acceptance criteria, prior to these procedures being issued for implementation by all site organizations. This was outlined in a letter issued by Niagara Mohawk, dated February 29, 1984.

Niagara Mohawk has issued a directive requiring organizations performing radiography at Unit 2 to revise their procedures to incorporate the Niagara Mohawk criteria developed based on ASME Section III, Division I, paragraph NX-4424(e) pertaining to abrupt changes in film density which produce linear indications.

Niagara Mohawk will provide direction to site personnel responsible for safety related work. The directive will re-emphasize the requirement that no work is to be performed that does not comply with appropriate procedures, instructions, and drawings and that if adequate procedures, instructions and/or drawings are not available the work will not proceed until they are available.

Niagara Mohawk has evaluated and re-oriented its approach to site surveillance programs to place additional emphasis on checking that the work is being performed in accordance with approved instructions, procedures, and drawings.

Niagara Mohawk will review Stone and Webster's site surveillance program to determine if adequate emphasis has been placed on checking that the work is being performed in accordance with approved instructions, procedures and drawings.

The date when full compliance will be achieved:

June 15, 1984, except for the engineering evaluation of inaccessible welds discussed in Example 5 above.

C. The alleged violation was stated as follows:

10CFR Part 50, Appendix B, Criterion VI requires, in part, "Measures shall be established to control the issuance of documents...including changes thereto, which prescribe all activities affecting quality. These measures shall assure that documents, including changes...are distributed to and used at a location where the prescribed activity is performed."

Niagara Mohawk Power Corp. Quality Assurance Manual Section 6 implements 10CFR Part 50, Appendix B, Criterion VI.

Contrary to the above, the licensee has failed to meet the requirements of Criterion VI as exemplified by the following examples:

1. Raceway tickets used to perform inspection of Class IE cable tray and conduit installations, and ITT Grinnell and Reactor Controls Incorporated Hanger Inspection Checklists did not indicate the latest revision or design change document that was used to accomplish construction and inspection activities.
2. Design changes were not being incorporated into the construction drawings. It was found that a large number of design changes were posted against the BE-series drawings without revisions to the drawing being performed.
3. Design changes on construction drawings were not being identified at the location of the work activity. It was found that Engineering and Design Coordination Reports (E&DCRs) and Advance Change Notices (ACNs) were not being posted on drawings being used by the subcontractors and inspectors as required by site procedures.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine the reasons and the extent to which these examples are representative of overall program or implementation weaknesses. As a result of this review, Niagara Mohawk has determined that implementation of the methods used for controlling the distribution of changes to design documents to locations where prescribed activities are performed is deficient.



The reasons for the alleged violation were determined to be:

The Project Procedures did not require the recording of the latest revision or design change document that were used to accomplish construction and inspection activities on inspection records.

The system of posting design changes used at the time of the CAT Inspection was not timely considering the number of controlled document stations, as well as the volume of design documents and associated changes which needed to be processed.

Procedural requirements for E&DCR incorporation were not fully implemented. At the time of the CAT Inspection, an intensive effort was underway to increase the rate of incorporation of ACN's into drawings. Consequently incorporation of other documents such as E&DCRs lagged. Given the fact that there is more initial reviews on E&DCRs versus ACNs, it is believed that the proper priorities were applied.

Additional information on the reasons for the examples cited (where they amplify the reasons for the violation stated above) is provided in the paragraphs below, which address corrective and preventive action for each example.

Corrective and preventive action taken are as follows:

Example 1: Raceway tickets used to perform inspection of Class 1E cable tray and conduit installations, and ITT Grinnell and Reactor Controls Incorporated Hanger Inspection Checklists did not indicate the latest revision or design change document that was used to accomplish construction and inspection activities.

The corrective actions taken on the above example are as follows:

Niagara Mohawk will direct contractors to develop and implement sampling plans for the inspection of previously accepted items where

inspection records do not reflect the latest revision or design change document, to verify that the installed work is in compliance with the latest revision of the design document and/or design change documents. These plans will be approved by Niagara Mohawk prior to implementation. Niagara Mohawk will also perform surveillance of the implementation of these sampling plans.

Preventive actions taken are as follows:

Niagara Mohawk will direct site contractors to review the appropriate quality assurance procedures to verify that they contain requirements that the latest revision of the design documents and change thereto are used to accomplish construction and inspection activities are documented on appropriate records. Procedures that currently do not state these requirements will be revised.

Examples 2 and 3: Design changes were not being incorporated into the construction drawings. It was found that a large number of design changes were posted against the BE-series drawings without revision to the drawing being performed, and

Design changes on construction drawings were not being identified at the location of the work activity. It was found that Engineering and Design Coordination Reports (E&DCRs) and Advance Change Notices (ACNs) were not being posted on drawings being used by the subcontractors and inspectors as required by site procedures.

The corrective actions taken based on concerns identified on Pages VIII-9 thru VIII-12 and Table VIII-1 in the CAT Report are as follows:

During the CAT Inspection, a computer search of drawings was performed. The final results identified 145 drawings that had 5 or more change documents posted against them. All 145 drawings have been revised to incorporate the posted changes.

The sample inspection to be performed as part of the corrective action stated under Example 1 above, will confirm that construction activities performed on Unit 2 were performed to the applicable design change documents. Niagara Mohawk will direct site organizations to review drawings used at the work locations for compliance to posting requirements for any design changes. Any drawings found to be deficient will be corrected.

Preventive actions taken are as follows:

A computerized document control status information system will be implemented to assure that design changes are incorporated in a timely manner and that personnel are informed of changes to design documents.

The practice of posting changes on the cover of multi-sheet drawings has been discontinued. Each sheet of a multi-sheet drawing will be posted with the change document that affects it. When a sheet has five changes (E&DCR's and/or closed N&D's) posted against it, that sheet will be revised to incorporate the changes.

Project schedules called for completion of most Stone and Webster drawings by approximately the end of March 1984. Niagara Mohawk will assure that sufficient design personnel remain to maintain the updating of drawings at the required rate. Niagara Mohawk's assessment of the amount of manpower required to maintain this effort is complete.

The problem of the large backlog of ACNs was recognized and acted on prior to the CAT Inspection. On October 6, 1983, a decision was made to accelerate the rate of incorporation of ACNs into affected documents to approximately 1500 a month, 500 greater than the average

number of ACNs generated. Since then the targets have been set at either 500 more than written the previous month or 1500. At this rate, it is expected that the backlog of QA Category I ACNs will be eliminated by May 15, 1984. Also, the 60 day requirement has been reinstated for ACNs initiated after March 31, 1984.

The date when full compliance will be achieved:

June 15, 1984

D. The alleged violation was stated as follows:

10CFR Part 50, Appendix B, Criterion VII requires, in part, "Measures shall be established to assure that purchased material, equipment and services...conform to the procurement documents...Documentary evidence that material and equipment conform to the procurement documents shall be available..."

Niagara Mohawk Power Corp. Quality Assurance Manual Section 7 implements 10 CFR Part 50, Appendix B, Criterion VII.

Contrary to the above, the licensee has failed to meet the requirements of Criterion VII as exemplified by the following examples:

1. General Electric Product Quality Control released a pump and motor from Union Pump Company (PQC No. AQ586), incorrectly verifying that the equipment conformed to the purchase specification when in fact the motor was the wrong size.
2. Stone and Webster Engineering Corporation PQA released material from Cives Steel Corporation, Power Conversion Products, and ITE Gould Corporation that did not meet specification requirements as follows:
  - a. Stone and Webster Shop Inspection Report 0056 stated that Beams B-3203-2 and B-3203-4 were satisfactory based on a random inspection of the shipment. 15% of the welds on the beams inspected, supplied by Cives Steel, were undersized.
  - b. Stone and Webster Shop Inspection Report N25204A057 of Cives Steel concerned steel beams for the Diesel Generator Building and stated that "welding inspection performed and found to be satisfactory in accordance with inspection plan and AWS D.1.1." The inspection plan instructions required "100 percent visual inspection in accordance with AWS D.1.1." However, beam E 4236-1 and others were found to have insufficient weld material.
  - c. Stone and Webster Shop Inspection Report of the Static Battery Chargers supplied by Power Conversion Products stated that routine tests including dielectric, regulation, ripple, and surge tests were performed. However, when tests were performed on-site, it was found that the battery chargers would not generate a DC output voltage when energized and internal circuit boards and breakers were found to be defective. These problems resulted in the identification of these problems as a potential 10CFR Part 50.55(e) item to NRC Region I; however, no actions were taken regarding ineffective source inspection.



- d. Stone and Webster PQA released equipment and material for battery racks from ITE Gould Corporation that included bolting material that was commercial grade instead of the SAE J429 grade 2 bolting material required by the equipment drawings.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine reasons and the extent to which these examples are representative of overall program or implementation weaknesses. As a result of this review, Niagara Mohawk concurs that Procurement Quality Assurance (PQA) inspection of certain components was deficient.

The reasons for the alleged violation were determined to be:

Failure of the vendor to comply with procurement requirements; and failure of Stone and Webster and General Electric Procurement QA Programs to identify these discrepancies prior to release of material.

Additional information on the reasons for the examples cited (where they amplify the reasons for the violation stated above) is provided in the paragraphs below, which address corrective and preventive actions for each example.

Corrective and preventive actions taken are as follows:

Example 1: General Electric Company Product Quality Control released a pump and motor from Union Pump Company (PQC No. AQ586), incorrectly verifying that the equipment conformed to the purchase specification when in fact the motor was the wrong size.

The corrective action taken on the pump and motor concerns identified on Page VIII-8 in the CAT Report are as follows:

In June 1982, the applicant identified that the motors on the Reactor Water Clean-up Pump were 460 volt in lieu of the required 575 volts. The General Electric representative at the site was notified, and Field Deviation Disposition Report (FDDR) KGI-092 was initiated on 6/25/82. Investigation revealed that the correct pumps and motors for Unit 2 with 575 volt ratings were shipped from Union Pump Co. to another nuclear project. The other project motors with 460 volt ratings went to Unit #2. The motors at Unit #2 were disassembled from the pumps and replaced with the proper motors, as required by the FDDR.

Niagara Mohawk will direct Stone & Webster to sample inspect the GE supplied safety related motors previously received at the Unit 2 site for compliance with specified ratings.

Preventive actions taken are as follows:

Niagara Mohawk will direct Stone and Webster to revise their receiving inspection plans to include inspection attributes to verify that safety related motors comply with the specified ratings.

Example 2: Stone and Webster Engineering Corporation (SWEC) PQA released material from Cives Steel Corporation, Power Conversion Products, and ITE Gould Corporation that did not meet specification requirements as follows:

- a) SWEC Shop Inspection Report 0056 stated that Beams B-3203-2 and B-3203-4 were satisfactory based on a random inspection of the shipment. Fifteen percent of the welds on the beams inspected, supplied by Cives Steel, were undersized.
- b) SWEC Shop Inspection Report N25204A057 of Cives Steel concerned steel beams for the Diesel Generator Building and stated that "welding inspection performed and found to be satisfactory in accordance with

inspection plan and AWS D.1.1". The inspection plan instructions required "100 percent visual inspection in accordance with AWS D.1.1". However, beam E 4236-1 and others were found to have insufficient weld material.

The corrective actions taken on the Cives shop/field weld deficiencies identified on Pages IV-13 and IV-14 of the CAT Report are as follows:

The field welds identified by the CAT Inspection indicate 1 of 170 welds to be undersize. N&D 5986 was issued to address this deficiency. The results are that the undersized weld on beam F4236-2 was determined to be acceptable as is, due to the fact that the actual weld size is greater than the minimum required as determined by subsequent engineering evaluation of the design calculations.

The shop welds identified by the CAT Inspector that had the paint removed, were reinspected and the following results determined:

Beam A-3621 contained undersize welds. (For the record, the correct beam number is A6321.) N&D 6040 was issued to address this deficiency. The results are that the undersized weld on beam A6321 was determined to be acceptable as is, due to the fact that the actual weld size is greater than the minimum required as determined by subsequent engineering evaluation of the design calculations.

Beam A3203-6 contained unacceptable underrun. N&D 6040 was issued to address this deficiency. The results are that the underrun weld on beam A3203-6 was determined to be acceptable as is, due to the fact that the actual weld size is greater than the minimum as determined by subsequent engineering evaluation of the design calculations.

Beam E4236-1 contained undersize welds. N&D 6040 was issued to address this deficiency. The results are that the undersized weld on beam E4236-1 was determined to be acceptable as is, due to the fact that the actual weld size is greater than the minimum as determined by subsequent engineering evaluation of the design calculation.

Beams B3203-2, B3203-4 and E3213-1 did not contain any deficient welds.

In addition, a sampling plan was developed in accordance with Military Standard 414 (Inspection Level 4) for Cives Steel structural steel welds. Of the 75 welds selected from the sampling plan, 12 were found not to be in compliance with AWS D.1.1 visual inspection requirements. These deficient welds were documented on Nonconformance and Disposition Report Number 6796. These deficient welds were determined to be acceptable since the stress levels in each of the nonconforming welds were checked based on existing conditions and all are within the allowable design stresses.

Preventive actions taken are as follows:

Stone and Webster Procurement QA Inspectors will be retrained with regard to visual inspection requirements of AWS D.1.1 and the inspection plan.

Example 2c: SWEC Shop Inspection Report of the Static Battery Chargers supplied by Power Conversion Products stated that routine tests including dielectric, regulation, ripple, and surge tests were performed. However, when tests were performed on site, it was found that the battery chargers would not generate a DC output voltage when energized and internal circuit boards and breakers were found to be defective. These problems resulted in the identification of these

problems as a potential 10CFR Part 50.55(e) item to NRC Region I; however no actions were taken regarding ineffective source inspection.

The corrective actions taken on the Static Battery Chargers concerns identified on Page VIII-9 in the CAT Report are as follows:

During testing of the battery chargers on site, it was found that the chargers would not produce a DC output voltage when energized; and internal circuit boards and breakers were found to be defective. These deficiencies had been identified on Nonconformance and Disposition Reports. The deficient condition of the Battery Chargers was also reported under 10CFR 50.55(e) to the NRC on July 12, 1983. The Final 50.55(e) Report concerning problems associated with the Battery Chargers was submitted to the NRC on August 15, 1983. The results were that vendor wiring errors were corrected to conform with design requirements, and defective components were replaced with acceptable components.

Preventive actions taken are as follows:

PQA Inspection Plans are being revised for Category I equipment to require PQA to verify that the seller has performed and documented a complete wiring check. In addition, PQA Inspection Plans are also being revised to require PQA to perform a sample physical inspection of wiring to the seller's latest approved wiring diagram.

Example 2d: SWEC PQA released equipment and material for battery racks from ITE Gould Corporation that included bolting material that was commercial grade instead of the SAE J429 grade 2 bolting material required by the equipment drawings.

The corrective and preventive actions taken on this example are as follows:



See alleged violation B, Example 2 for the Station Batteries and Racks, for Niagara Mohawk's response for corrective and preventive action.

GENERIC CORRECTIVE ACTION TAKEN FOR ALLEGED VIOLATION D IS AS FOLLOWS:

Niagara Mohawk will direct that a sampling plan be developed by Stone and Webster for approval by Niagara Mohawk to re-inspect previously accepted vendor equipment.

GENERIC PREVENTIVE ACTIONS TAKEN FOR ALLEGED VIOLATION D ARE AS FOLLOWS:

Inspection plans will be developed or revised that require Stone and Webster Procurement QA to witness testing of selected mechanical and electrical components not yet shipped to the site.

Inspection plans for receiving inspection of selected mechanical and electrical components will be developed or revised by Stone and Webster to require inspections of components for compliance to specification and drawing requirements (i.e. correct material supplied, correct wiring, correct welds, correct configuration, etc.).

Niagara Mohawk will direct Stone and Webster to notify Niagara Mohawk of PQA source inspections. Niagara Mohawk will then selectively participate in these source inspections to satisfy itself that SWEC is performing its inspection in accordance with procurement documents.

The date when full compliance will be achieved:

June 15, 1984

E. The alleged violation was stated as follows:

10CFR Part 50, Appendix B, Criterion VIII requires, in part, "Measures shall be established for the identification and control of materials, parts, and components.... These measures shall assure that identification of the item is maintained by heat number, part number, serial number, or other appropriate means...."

Niagara Mohawk Power Corp. Quality Assurance Manual Section 8 implements 10 CFR Part 50, Appendix B, Criterion VIII.

Contrary to the above, the licensee has failed to meet the requirements of Criterion VIII as exemplified by the following examples:

1. Welding lugs and other parts of ASME III Class 1 Linear NF Hangers for the Reactor Coolant Recirculation System were not marked for specific traceability to applicable specification and grade of material or heat number. This does not satisfy ASME NCA-3866.6 requirements as presented by Code Case N-255, which is referenced in the Final Safety Analysis Report (FSAR) Table 5.2.1.
2. The material control, application and installation of fasteners for safety-related mechanical, electrical and structural equipment, and the disposition of unused weld rod in the plant have not been adequately controlled to prevent the use of incorrect parts or material.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine reasons and the extent to which these examples are representative of overall program or implementation weaknesses. As a result of this review, Niagara Mohawk has determined that cited Example 1, relative to welding lugs and other parts is not a deficiency. Niagara Mohawk has also determined that measures exist in implementing procedures/instructions to assure identification and control of material, parts and components; however, Niagara Mohawk does concur that failure to implement the existing programs did result in inadequate controls to prevent the use of incorrect materials.

The reasons for the alleged violation were determined to be:

Failure of personnel to follow existing procedures, inadequate management attention to control of materials, and inadequate coordination of these activities between contractors.

Additional information on the reasons for the examples cited (where they amplify the reasons for the violation stated above) is provided in the paragraphs below, which address corrective and preventive action for each example.

Corrective and preventive actions taken are as follows:

Example 1: Welding lugs and other parts of ASME III Class 1 Linear NF hangers for the Reactor Coolant Recirculation System were not marked for specific traceability to applicable specification and grade of material or heat number. This does not satisfy ASME NCA-3866.6 requirements as presented by Code Case N-255, which is referenced in the Final Safety Analysis Report (FSAR) Table 5.2.1.

The corrective action taken on the welding lugs and other parts identified on Pages VI-2 through VI-4 in the CAT Report are as follows:

The vendor component drawing classified the welding lugs as Linear, which is a higher classification than the lugs actually are. The actual classification of the welding lugs is Component Standard Support. General Electric has issued FDDR Number KGI-0191 to show the correct classification of the lugs. Other parts of the supports are correctly classified as Component Standard Supports. Under ASME Section III, Division I NCA-3866.6 and Code Case N-255 Component Standard Supports are not required to be physically marked for traceability after fabrication.

Preventive actions taken are as follows:

General Electric has reviewed a representative sample of documentation for component standard supports supplied by Specific Scientific (the only other supplier of NSSS supports) and has not found any conditions that would require a need for a further traceability investigation.

Example 2: The material control, application and installation of fasteners for safety-related mechanical, electrical and structural equipment, and the disposition of unused weld rod in the plant have not been adequately controlled to prevent the use of incorrect parts or material.

The corrective action taken on the installation of fastener concerns identified on Pages VI-2 through VI-4 in the CAT Report are as follows:

Service Water Pump, 2SWP\*PIC

- a. Motor mounting bolts were not marked. This deficiency was identified because the connections appeared to be designated as ASME NF, which would require the mounting bolts to be marked. A review of the connections had been performed and it was determined that they were not ASME NF, per E&DCR C15655. This E&DCR was issued to clarify that these connections were not designed ASME, which also deleted the requirement for the bolts to be marked. Therefore, these bolts are acceptable.
- b. Lockwashers missing from motor mounting bolts. Three lockwashers, which were vendor installed, apparently were removed during installation and not replaced. Since the vendor equipment documentation did not identify the use of lockwashers,

the vendor was contacted and it was confirmed that the lockwashers were required. Therefore, the vendor equipment documentation will be revised to identify the lockwashers. The final installation of the lockwashers has also been designated as a quality hold point.

- c. Flatwashers missing from beneath nuts for anchor bolts. Although the flatwashers were missing, the installation and inspection of this pump was not complete. Final installation and inspection will assure that the washers are installed.

Service Water Pump, 2SWP\*PIA

- a. Motor mounting bolts are not marked. The resolution to this deficiency is the same as for Pump 2SWP\*PIC (paragraph a) above.
- b. Flat washers missing from beneath anchor bolt nuts. The resolution to this deficiency is the same as for Pump 2SWP\*PIC (paragraph c) above.

Unit Cooler, 2HVR\*UC413B

- a. No marking on 1" anchor bolts. Marking of anchor bolts is verified by Quality Control as part of the preplacement inspection. Marking may or may not be accessible after the concrete placement. In addition, as per specification, the excessive thread projection had been cut off and had the marking been on the end of the bolt, it would not now be available. The preplacement inspection reports for the placements that involved these anchor bolts were complete and satisfactory for this item.
- b. Washers were missing and nuts were not marked to indicate material as specified by the drawing. At the time of the CAT Inspection, temporary hardware was in place. Bolting installation



had not been signed off as complete by Construction or FQC. Since then the permanent hardware has been installed and QC accepted.

Residual Heat Removal Pump, 2RHS\*P1C - Washers were not installed under nuts attaching pump base to mounting adapter plate. The drawing configuration showed washers under the nuts, but the material list did not include washers. The lack of washers was detected by a Quality Control in-process inspection. The requirement for washers was subsequently deleted by E&DCR F11277 making the existing condition acceptable.

High Pressure Core Spray Pump, 2CSH\*P1 - Washers were not installed under nuts of main anchor bolts. The lack of washers was detected by a Quality Control in-process inspection. The requirement for washers was subsequently deleted by E&DCR F11277 making the existing condition acceptable.

High Pressure Core Spray Pump, 2CSH\*P2 - Washers were not installed under nuts of main anchor bolts. At the time of the CAT Inspection, temporary hardware was in place. Bolting installation had not been signed off by Construction or Quality Control. These washers will be installed during the installation process and inspected.

Low Pressure Core Spray Pump, 2CSL\*P1 - Washers were not installed under nuts of the main anchor bolts. The conditions and corrective action on this pump are exactly the same as 2CSH\*P1 above.

Low Pressure Core Spray Pump, 2CSL\*P2 - Washers were not installed under nuts of main anchor bolts. The condition and corrective action on this pump are exactly the same as pump 2CSH\*P2.

Reactor Water Clean Up Pump 2WCS\*PIA/PIB - Washers were not installed under nuts of main anchor bolts. Washers have been installed and the bolts retorqued. The connections have been re-inspected and found acceptable. (For the record, CAT Report indicated that two pumps were involved, but only one pump (PIA) had been installed to the point where this observation could be made. The other pump (PIB) had not been bolted or grouted.)

Hydrogen Recombiners, 2HCS\*RBNR1A/B - As recognized in the CAT Report, this installation was temporary. The correct hardware will be installed at a later date.

Niagara Mohawk will direct Stone and Webster to develop a sampling plan for inspection of safety related installed equipment to verify that fasteners as installed are in conformance with design requirements.

Corrective action taken on unused/partially used weld rod identified on Page IV-3 in the CAT Report is as follows:

An indepth plant surveillance was performed by ITT Grinnell to identify unused/partially used weld rod. The deficiencies were corrected.

Preventive actions taken are as follows:

Material Control, application, and installation for Fasteners - To minimize re-occurrence of these types of conditions, retraining of construction personnel is being performed, with emphasis to not proceed with work if conflicting drawing requirements exist until Engineering has provided clarification.

Disposition of unused weld material - Site contractors will be directed to include the following in their welding material control program:

Electrode station attendants shall witness the return of unconsumed/scrapped electrodes in all rod stub cans. Exposed electrodes that were not consumed and were scrapped due to moisture are to be returned to the electrode stations, weighed and the amount documented as described on the welder's requisition slip. Welding Supervisors, assigned to each electrode station, are responsible to monitor and control these requirements. Supervisors, General Foremen and Foremen are required to monitor their work areas on a daily basis to assure compliance in the use of rod stub cans and assure their areas are clear of improperly discarded electrode stubs.

In addition, training on weld material control requirements for craft supervision is being conducted.

Niagara Mohawk will perform surveillances of the weld material control program to assure the above preventive actions are effective.

GENERIC PREVENTIVE ACTIONS TAKEN ARE AS FOLLOWS:

Training of applicable personnel is being performed in the areas of control of materials and the installation process of equipment fasteners.

The date when full compliance will be achieved:

June 15, 1984

F. The alleged violation was stated as follows:

10CFR Part 50, Appendix B, Criterion X requires, in part, "A program for inspection of activities affecting quality shall be established and executed...to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity...Examinations, measurements, or tests of material or products processed shall be performed for each work operation where necessary to assure quality."

Niagara Mohawk Power Corp. Quality Assurance Manual, Section 10, implements 10 CFR Part 50, Appendix B, Criterion X.

Contrary to the above, the licensee has failed to meet the requirements of Criterion X as exemplified by the following examples:

1. Supports and restraints installed by Reactor Controls Incorporated and ITT Grinnell have not been inspected in accordance with the design documents.
2. ITT Grinnell piping weld liquid penetrant inspections for the Reactor Venting System were not being performed in accordance with the Requirements of ASME Section V.
3. Separation requirements relative to some PGCC cable installations had not been properly inspected. In addition, inspection of some raceway installations relative to the requirements for physical separation had not been accomplished in accordance with the criteria established in the applicable procedures.
4. In the civil area, some inspections have been performed without adequate acceptance criteria and an inspection failed to identify deficient conditions. Examples are: concrete unit weight tests since 1976 were performed without acceptance/rejection criteria; base plates and equipment mounted on concrete surfaces have been installed before the concrete surface defect inspections were performed; the inspection plan for concrete surface defect inspections does not specifically address structural defects such as voiding, honeycomb, or exposed reinforcing steel; and QC inspection did not identify reinforcing steel spacing violations.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine reasons and the extent to which these examples are representative of overall

program or implementation weaknesses. As a result of this review, Niagara Mohawk has determined that improvements in certain inspection programs are required.

Reasons for the alleged violation were determined to be:

Some inadequate procedures; failure of some personnel to follow existing procedures; inadequate training regarding some procedure requirements such as the correct use of inspection equipment.

Information on the reasons for the examples cited (where they amplify the reasons for the violation stated above) is provided in the paragraphs below, which address corrective and preventive action.

Corrective and preventive actions taken are as follows:

Example 1: Supports and restraints installed by Reactor Controls Incorporated and ITT Grinnell have not been inspected in accordance with the design documents.

The corrective and preventive actions taken on this example are as follows:

See alleged violation B, Example 3 for supports and restraints, for Niagara Mohawk's response for corrective and preventive action.

Example 2 & 3: ITT Grinnell piping weld liquid penetrant inspections for the Reactor Venting System were not being performed in accordance with the requirements of ASME Section V.

Separation requirements relative to some PGCC cable installations had not been properly inspected. In addition, inspection of some raceway installations relative to the requirements for physical separation had not been accomplished in accordance with the criteria established in the applicable procedures.

The corrective and preventive actions taken on this example are as follows:

See alleged violation B, Example 5 for liquid penetrant inspection and Example 2 for PGCC, for Niagara Mohawk's response for corrective and preventive action.

Example 4: In the civil area, some inspections have been performed without adequate acceptance criteria and an inspection failed to identify deficient conditions. Examples are: concrete unit weight tests since 1976 were performed without acceptance/rejection criteria; base plates and equipment mounted on concrete surfaces have been installed before the concrete surface defect inspections were performed; the inspection plan for concrete surface defect inspections does not specifically address structural defects such as voiding, honeycomb or exposed reinforcing steel; and QC inspection did not identify reinforcing steel spacing violations.

Actions taken on the civil area identified deficiencies on Pages V-2 through V-6 in the CAT Report are as follows:

Niagara Mohawk does not agree that a violation of Criterion X existed relative to concrete unit weight tests performed without acceptance/rejection criteria. Unit weight tests were performed "for information only" and not for concrete acceptance.

Structural concrete mixes in shielding areas have been designed to meet dry unit weight requirements of 135 lb/cu ft., to satisfy radiation shielding requirements. Trial batch testing which included dry unit weight tests, used to select mix design and pre-qualification testing, used to verify mix design, ensure that mix designs specified meet engineering requirements. Conformance to mix design is assured through in-process controls during batching and placement.

The above, along with additional testing and engineering analysis performed subsequent to the CAT Inspection, has led to Niagara Mohawk's conclusion that structural concrete shielding requirements have been satisfied.



The CAT Inspector expressed a concern that surface mounted plates may be installed covering defects prior to surface inspection being performed. Niagara Mohawk does not concur that a concern exists, for the following reasons.

Quality Assurance Inspection Plan N20S203CFA004 provides the instructions and inspection criteria for concrete surface defects. These inspections have been performed on concrete surfaces which will be buried underground and are currently done to support the application of protective coatings. In addition, Quality Assurance Inspection Plan N20S203GFA001 requires an inprocess surveillance of drilled-in anchors and mounting of surface mounted plates. One attribute of this inspection plan is the verification of repair of damaged concrete. As described below, there is evidence that provides reasonable assurance that no concrete defects are covered by surface mounted plates.

Evidence that surface defects such as voids, exposed reinforcing steel and honeycomb are not being covered by surface mounted plates is documented by the 132 surveillance inspection reports performed to Inspection Plan N20S203GFA001. Thirty-nine of these reports included 66 surface mounted plates. No instances of plate installation over surface defects were found. The other 93 surveillance inspections covered approximately 125 supports, junction boxes and other items. No instances of surface mounted equipment covering voids, exposed reinforcing steel or honeycomb were found.

Specification S203C allows the civil contractor to correct most defects inprocess, in accordance with the specification, without the generation of nonconformance documentation. However, significant surface defects, i.e., voids which expose the back side of the first layer of reinforcing steel, require

repair in accordance with engineering direction provided on an N&D. Up until the time of the CAT Inspection, approximately 60 N&Ds had been generated to cover this type of situation.

Since there is no evidence of extensive defects on the exposed surfaces, it is not reasonable to assume that they exist where surface mounted plates have been installed. In addition, areas most prone to defects during placement, i.e. around doorways and penetrations, areas such as those identified by the NRC Inspector, are rarely locations chosen for surface mounted plates.

The CAT Inspector expressed a concern that the corrective action taken to assure that an identified isolated reinforcing steel spacing violation in the "Main Stack" concrete placement was not adequate. The specific concern was that the Stone and Webster inspector that gave a training session to assure the condition would not re-occur was the same inspector that did not identify the violation. Niagara Mohawk does not concur that a concern exists for the following reasons:

As stated in the CAT Report, the unsatisfactory condition was documented on Inspection Report No. S3033202 and corrected prior to the concrete placement and training sessions for corrective action were performed.

The training session was conducted using the inspector who was involved with the concern, the reason being that no one was more familiar with the concern and resolution of the concern than the person who had just been through the process. However, to resolve the CAT Inspectors concern, another training session covering this topic was conducted by the Discipline Inspector Supervisor on 12/6/83.

Based on the reasons provided and that no deficiencies have been identified, Niagara Mohawk does not concur with the CAT Inspector's concerns; therefore, no corrective or preventive action is required.

GENERIC PREVENTIVE ACTION TAKEN ARE AS FOLLOWS:

Stone and Webster will review all specialty and normal training programs to assure that items such as accept/reject criteria tolerances, procedures, instructions, and evaluation of effectiveness are addressed as necessary.

As a result of this review, training programs will be revised where applicable. Training will be conducted in the revised programs. Niagara Mohawk will increase its surveillance and audits of inspection activities to assure that contractors quality inspection programs are being implemented.

The date when full compliance will be achieved:

June 15, 1984

G. The alleged violation was stated as follows:

10CFR Part 50, Appendix B, Criterion XVI requires, in part, "Measures shall be established to assure that conditions adverse to quality...are promptly identified and corrected...the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management."

Niagara Mohawk Power Corporation Quality Assurance Manual, Section 16, implements 10 CFR Part 50, Criterion XVI.

Contrary to the above, the licensee has failed to meet the requirements of Criterion XVI as exemplified by the following examples:

1. The Stone and Webster Engineering Corporation program for overview of the ITT Grinnell radiography program did not take adequate corrective actions or provide effective resolution to problems associated with the radiographic inspection of piping welds.
2. Specification PP 77 required Advance Changes Notices (ACNs) to be incorporated into drawings within 60 days of initiation, but because of the large backlog of ACNs, Stone and Webster Engineering Corporation simply circumvented the procedure by temporarily revising it rather than finding a solution to the root cause of the high ACN generation rate. Thus, measures were not established to assure that conditions adverse to quality were being corrected.
3. Engineering and Design Coordination Reports (E&DCRs) and "documents" (surveillance reports, data sheets) other than the formal nonconformance reporting system have been used to identify and correct problems. In addition, conditions adverse to quality that were identified in the electrical and piping/pipe support areas have not been properly corrected. As the applicant's program of quality control inspections was not conducted as construction progressed, it has also prevented the prompt identification and correction of deficiencies.
4. The Reactor Controls Incorporated nonconformance and corrective action programs have failed to identify, evaluate, and correct recurring deficiencies in support/restraint installations.
5. Control panels in the Power Generation Control Complex (PGCC) contain many cable and wiring installations which do not conform to requirements. With regard to these installations, the applicant's program failed to promptly and properly identify and correct deficiencies.

6. After some deficient conditions were identified in the civil area, inadequate corrective actions were taken. Two examples are: a QC Inspector retraining session on reinforcing steel placement inspection was instructed by the QC Inspector who had failed initially to identify the deficient condition; and there is no evidence to show that a concrete truck mixer, which had failed mixer uniformity testing, had been repaired and retested for mixer uniformity.
7. The applicant's audit programs have not been effective in identifying or resolving major deficiencies in construction as evidenced by the following examples:
  - a. There were more than 150 open auditor comments and observations regarding audits performed in areas of Niagara Mohawk Power Corporation activities, some dating back to 1979.
  - b. Seven audits were performed in 1982 and 1983, of which just two involved areas involving hardware. These were field audits 29 and 32.
  - c. Although the audit program appeared to concentrate on program and documentation reviews, audits were not performed on inspection procedures and criteria in the electrical, mechanical and civil areas.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine reasons and the extent to which these examples are representative of overall program or implementation weaknesses. As a result of this review, Niagara Mohawk has concluded that there were certain weaknesses in some of the corrective action programs of Niagara Mohawk and site organizations.

The reasons for the alleged violation were determined to be:

The following were exhibited in varying degrees: lack of program effectiveness in identifying, tracking, trending, and timely follow-up and close out of corrective action items in a formalized and systematic manner; misinterpretation of and/or lack of specific procedure direction when deficiency documents should be used; and lack of management control over the corrective action program.



Information on the reasons for the examples cited (where they amplify the reasons from the violation stated above) is provided in the paragraphs below which address corrective and preventive actions for each example.

Corrective and preventive actions taken are as follows:

Example 1: The Stone and Webster Engineering Corporation program for overview of the ITT Grinnell radiography program did not take adequate corrective actions or provide effective resolution to problems associated with the radiographic inspection of piping welds.

The corrective actions taken on the Type "C" Inspection Report concerns identified on Pages IV-7 and VIII-8 in the CAT Report are as follows:

Weaknesses existed in the implementation of the SWEC program for Type C Inspection Reports in that there was inadequate attention to timely closure and no trending performed.

Stone and Webster's program for identifying deficiencies during overview of contractor's activities was to document the deficiency on a Type C Inspection Report to obtain corrective action. Stone and Webster Type "C" Inspection Reports had been issued, which identified conditions adverse to quality, however, adequate and prompt corrective actions had not been taken.

The status of the Type "C" Inspection Reports identified in the CAT Report are as follows:

1. P3G00352: The corrective action was taken and the report was closed by Stone and Webster on February 16, 1984.
2. P2G00157: The report has not been closed to date. This report will be closed by May 15, 1984.



3. P3G00411: The corrective action was taken and the report was closed by Stone and Webster on February 13, 1984.
4. P3G00012: The corrective action was taken and the report was closed by Stone and Webster on March 29, 1984.
5. P3G00051: The corrective action was taken and the report was closed by Stone and Webster on May 31, 1983.
6. P3G00244: The corrective action was taken and the report was closed by Stone and Webster on February 7, 1984.
7. P3G00133: For the record, this report does not exist and IR X3S00133 does not relate to radiography.
8. P3G00105: The corrective action was taken and the report was closed by Stone and Webster on October 4, 1983.
9. P3G00196: The corrective action was taken and the report was closed by Stone and Webster on March 26, 1984.
10. P3G00096: The corrective action was taken and the report was closed by Stone and Webster on August 25, 1983.
11. P3G00345: The report has not been closed to date. This report will be closed by May 15, 1984.
12. P2G00135: The report has not been closed to date. This report will be closed by May 15, 1984.
13. P1G00045: The corrective action was taken and the report was closed by Stone and Webster on January 19, 1984.

14. M2R00275: The corrective action was taken and the report was closed by Stone and Webster on April 10, 1984.

Preventive actions taken are as follows:

Stone and Webster will revise the procedure controlling Type "C" Inspection Reports to provide for greater enforcement of time restraints for response due from the responsible organization, and for approval and verification of the corrective actions delineated in the response. The procedure will also be revised to require escalation to upper management for resolution when the above actions are not performed within the required time. In addition, procedures are also being developed to involve Stone and Webster Engineering Corporation Management in all phases of the corrective action system.

Example 2: Specification PP 77 required Advance Changes Notices (ACNs) to be incorporated into drawings within 60 days of initiation, but because of the large backlog of ACNs, Stone and Webster Engineering Corporation (Stone and Webster) simply circumvented the procedure by temporarily revising it rather than finding a solution to the root cause of the high ACN generation rate. Thus, measures were not established to assure that conditions adverse to quality were being corrected.

The corrective action taken on the backlog of ACNs identified on Page VIII-11 in the CAT Report are as follows:

Project Procedure PP-77 was implemented in May 1982. At that time, the ACN incorporation requirements for ACN's contained in PP-77 were 60 days after site work tracking closure date. These incorporation requirements were based on the assumption that documentation of work completion would occur as soon as the changes authorized on a particular ACN were completed.

These incorporation requirements remained in effect until March 1983. At that time, the incorporation requirements were changed to 60 days after ACN authorization except when "as-built" information was required. This procedural change was made because it was recognized that contractor inspectors were not documenting work completion for an authorized ACN until inspection of the entire system was scheduled, thereby delaying submission of the ACN for incorporation.

In July 1983, an assessment was initiated by management to evaluate the ACN system. This assessment found that the backlog of unincorporated ACN's was unacceptably high (approximately 3500) and increasing. The cause of this increasing backlog was found not to be due to the rate of ACN initiation, but an extremely low rate of ACN incorporation.

On September 20, 1983, it was determined that immediate and extensive corrective action was necessary to reduce the ACN backlog and correct the conditions that caused it to exist. At this time, it was decided that the incorporation requirements in PP-77 should be modified to require incorporation of the greater of 1500 ACN's per month or 500 more ACN's than initiated each month.

On November 11, 1983, supplement NMP2-PPS-PP77-38 to PP-77 was issued in accordance with Project Procedure PP-86 to institute the revised incorporation requirements which represented an essential part of the corrective action for the ACN system.

In view of the large ACN backlog that existed at that time, it was necessary to suspend the previous 60-day incorporation requirement to permit the project to concentrate its incorporation efforts on those ACN's that had already exceeded this limit or otherwise warranted incorporation on a priority basis. The accelerated incorporation requirements were to remain in effect until the backlog of unincorporated ACN's was effectively reduced, at which time the 60-day incorporation requirement would be re-instituted.

Action was also being taken at this time to increase the speed of ACN incorporation. On September 27, 1983, the SWEC Senior Construction Site Representative issued a memorandum (NM2M-2116) to SWEC Department Heads and Site Contractors instructing them to submit ACN as-built information as soon as the work is complete.

Niagara Mohawk has concluded that the original project procedure incorporated a faulty assumption, that is, the original program requirements should not have tied ACN closure to work tracking closure. As previously explained, the procedure change was, in fact, a portion of the corrective action effort resulting from the condition of excessive ACN backlog previously identified by management, not an attempt to merely circumvent procedures.

Preventive actions taken are as follows:

The requirement for incorporation of ACNs within 60 days after issuance, has been reinstated in Project Procedure PP-77 for ACNs initiated after March 31, 1984.

Example 3: Engineering and Design Coordination Reports (E&DCRs) and "documents" (surveillance reports, data sheets) other than the formal nonconformance reporting system have been used to identify and correct problems. In addition, conditions adverse to quality that were identified in the electrical and piping/pipe support areas have not been promptly corrected. As the applicant's program of quality control inspections was not conducted as construction progressed, it has also prevented the prompt identification and correction of deficiencies.

The corrective actions taken on the use of E&DCRs and "documents" other than the formal nonconformance reporting systems identified on Pages II-20 in the CAT Report are as follows:

Niagara Mohawk concurs that there were deficiencies in the implementation of the nonconformance reporting systems. Certain personnel did not fully understand the system. However, there is no need for previously issued E&DCR documents that identified nonconforming conditions to be reissued as nonconformance documents (i.e., no backfit required) since these documents have been reviewed and approved in a manner commensurate with the N&D report. Also, independent of the procedural requirements for processing E&DCR's and N&D reports, any employee who has evidence of a potentially reportable deficiency is required, by procedure, to notify appropriate supervisory personnel.

Based on our assessment of project status, Niagara Mohawk does not agree with the conclusion that there is a significant backlog of completed work which has not been inspected. At the time of the CAT Inspection, there was a backlog of construction installations which were not completed to the stage where they were ready for final inspection.

Preventive actions taken are as follows:

Training will be provided to project personnel by site organizations to ensure compliance with existing nonconformance procedures and to obtain a uniform interpretation of those procedures regarding the documentation of nonconforming conditions.

Example 4: The Reactor Controls Incorporated nonconformance and corrective action programs have failed to identify, evaluate and correct recurring deficiencies in support/restraint installations.

The corrective actions taken on the failure to identify, evaluate and correct recurring deficiencies in support/restraint installations identified on pages III-5 and III-6 of the CAT Report, are as follows:



A review of previously issued Reactor Controls Incorporated (RCI) surveillance reports will be performed to verify that potential nonconformances have been correctly documented. Those deficiencies that were not documented will be documented on a nonconformance report. Conditions found to be adverse to quality will be identified and corrective actions taken to preclude their recurrence.

Preventive actions taken are as follows:

RCI Quality Control Inspection Procedures are being revised to include the process in which surveillance inspections are performed, open items are tracked, and nonconforming items are identified, trended and action taken on to preclude their recurrence.

RCI QAI-15-1, Nonconformance Report Procedure, was revised to include more detailed instructions on when a Nonconformance Report is required and the action to be taken.

Appropriate personnel will be provided training covering compliance to the revised procedure requirements.

Example 5: Control panels in the Power Generation Control Complex (PGCC) contain many cable and wiring installations which do not conform to requirements. With regard to these installations, the applicant's program failed to promptly and properly identify and correct deficiencies.

The corrective/preventive actions taken on the failure to promptly and properly identify and correct deficiencies in the PGCC, identified on pages II-9 thru II-11 of the CAT Report are as follows:

See alleged violation B, Example 2, for the Power Generation and Control Complex corrective and preventive actions.



Example 6: After some deficient conditions were identified in the civil areas, inadequate corrective actions were taken. Two examples are: a QC inspector retraining session on reinforcing steel placement inspection was instructed by the QC inspector who had failed initially to identify the deficient condition; and there is no evidence to show that a concrete truck mixer, which had failed mixer uniformity testing, had been repaired and retested for mixer uniformity.

The corrective actions taken on the inadequate corrective actions of deficiencies in the civil area identified on pages V-3 and V-5 of the CAT Report, are as follows:

#### Concrete mixer truck

Niagara Mohawk has concluded that the incident involving the concrete truck mixer was an implementation deficiency in that Stone & Webster did not follow through for corrective action or have specific instructions to do so.

A review of inspection records from 4/9/81 through 5/30/81 indicated that truck no. 25 was used on 5/1/81 and 5/6/81 for a Category I and a Category II placement, respectively. Compressive Strength Tests were performed on concrete placed from truck no. 25 on both days. Specified strengths of 4000 psi were required at 28 days for the concrete delivered by truck no. 25. Actual average strengths of 4980 psi and 5120 psi at 28 days for these two placements were achieved, substantiating the acceptability of the concrete that was used.

#### QC Inspector retraining

See alleged violation F, Example 4, for the corrective and preventive actions.

Preventive actions taken are as follows:

Inspection Plan No. N20S203AF0001 now requires that a letter will be sent to the vendor, informing him that a suspect truck, which has been rejected for failing mixer uniformity testing, cannot be used at Unit #2 until the unsatisfactory condition is corrected.

Example 7: The applicant's audit programs have not been effective in identifying or resolving major deficiencies in construction as evidenced by the following examples:

There were more than 150 open auditor comments and observations regarding audits performed in areas of Niagara Mohawk Power Corporation activities, some dating back to 1979.

Seven audits were performed in 1982 and 1983, of which just two involved areas involving hardware. These were field audits 29 and 32.

Although the audit program appeared to concentrate on program and documentation reviews, audits were not performed on inspection procedures and criteria in the electrical, mechanical and civil areas.

The corrective action taken on the audit program concerns identified on page VIII-2 and VIII-3 of the CAT Report is as follows:

Significant progress has been made to close out open audit items identified during the CAT Inspection. The remainder will be closed by June 15, 1984.

The seven quarterly audits performed by Niagara Mohawk have been a combination of programmatic/documentation reviews and physical inspection of hardware. Since the audits appeared to the NRC Inspector to concentrate on non-hardware concerns, Niagara Mohawk believes there may be an implementation weakness in that a better balance of hardware and paperwork audits was not maintained.

Audits, by their very nature, rely on sampling techniques which must be somewhat random in order to be effective. The fact that three specific areas were not audited within a short series of audits may be attributed to the randomness of the audit process. However, Niagara Mohawk believes that this could be considered an implementation weakness in that a better balance of areas of audit had not been provided.

Preventive actions taken are as follows:

Niagara Mohawk has evaluated, reoriented, and revised its audit programs to emphasize hardware and has modified procedures as required. A Niagara Mohawk QA on-site audit group has been organized and a new procedure developed for auditing the Unit 2 construction activities.

GENERIC PREVENTIVE ACTIONS TAKEN ARE AS FOLLOWS:

Niagara Mohawk will direct all site organizations to review and revise as necessary their corrective action systems to assure that conditions adverse to quality are promptly identified and corrected, and that the cause of the condition and the corrective action taken is documented. Also, site organizations will review existing audit procedures for adequacy for identifying and promptly resolving conditions adverse to quality with emphasis on hardware items.

Niagara Mohawk has reviewed and revised its corrective action system and audit program for the Unit 2 Project. The revised procedures include provision for timely response and verification of corrective actions.

The new corrective action system has been implemented since February 17, 1984. The new audit program has just begun implementation with completion of the first audit of an on-site contractor, ITT Grinnell, on April 23, 1984.

The date when full compliance will be achieved:

June 15, 1984

H. The alleged violation was stated as follows:

10 CFR Part 50, Appendix, B, Criterion XVII requires, in part, "Sufficient records shall be maintained to furnish evidence of activities affecting quality...Records shall be identifiable and retrievable...".

Niagara Mohawk Power Corporation Quality Assurance Manual, Section 17, implements 10CFR Part 50, Appendix B, Criterion XVII.

Contrary to the above, the licensee has failed to meet the requirements of Criterion XVII as exemplified by the following examples:

1. Electrical inspection records indicated separation criteria to be acceptable, when in fact, a number of installations examined did not conform to requirements.
2. Documentation deficiencies with regard to five Reactor Controls Incorporated welder qualifications, i.e., coupon thickness and bend test result documentation, were identified.
3. ITT Grinnell quality control inspection records for radiographs of twelve piping welds did not properly document the radiographic inspection results.

Niagara Mohawk's response to the alleged violation is as follows:

Niagara Mohawk has reviewed the examples identified to determine reasons and the extent to which these examples are representative of overall program or implementation weaknesses. As a result of this review, Niagara Mohawk has concluded that there were deficiencies in certain records related to electrical inspections, welder qualification, and radiographs.

The reasons for the alleged violation were determined to be:

Certain instructions, procedures, and/or drawings lacked accept/reject criteria for some attributes. Some attributes to be verified were not identified on some documents (e.g. checklists, inspection plans, and planner packages). Certain training programs did not adequately address all elements (e.g. accept/reject criteria, procedures, instructions and drawings) necessary to perform and

accept the work. Personnel failed to implement approved instructions/procedures.

Additional information on the reasons for the examples cited (where they amplify the reasons for the violation stated above) is provided in the paragraphs below, which address corrective and preventive actions for each example.

Corrective and preventive action taken are as follows:

Example 1: Electrical inspection records indicated separation criteria to be acceptable, when in fact, a number of installations examined did not conform to requirements.

The corrective and preventive actions taken on inspection records for separation criteria identified on Pages II-9 thru II-11 in the CAT Report are as follows:

See Example 2 of alleged violation B for Niagara Mohawk's response for corrective and preventive actions.

Additionally, the following information is provided for the concern regarding cable pulling inspection records:

Cables 2EHSBYL003 and 2EHSAGL003 were installed in accordance with existing specification and QA Program requirements. During the CAT Inspection, these cables were in a partial pull status. The documentation shows these to be in-process. During the in-process work, the FQC inspector accepted the cable installation knowing that in order to complete the cable installation, the cable would have to be moved and inspected. Inspection Plan No. N20EO61AFA025 now requires the FQC inspector to inspect the cable back through the last raceway section or to the extent necessary to assure that the cable is still in compliance with the applicable specification requirements. Inspection Report No. E3007624 was for an in-process inspection which accurately reflected the condition of the cables at the time of the inspection.



Example 2: Documentation deficiencies with regard for five Reactor Controls Incorporated welder qualifications, i.e., coupon thickness and bend test result documentation, were identified.

The corrective actions taken on documentation deficiencies for welder qualifications identified on pages IV-10 and IV-11 in the CAT Report are as follows:

A review has been performed of active pipefitter and iron worker welder qualification records as of 12/1/83. Where a discrepancy was identified on the welder qualification record, the record was corrected. Corrections of discrepancies on the qualification record were possible since the test parameters and test results were available for re-review. In no case was it found that a welder did not meet the qualification requirements for the welds that he has performed.

Preventive actions taken are as follows:

Appropriate personnel will be retrained to assure proper completion of the welder qualification records.

Example 3: ITT Grinnell quality control inspection records for radiographs of twelve piping welds did not properly document the radiographic inspection results.

The corrective and preventive actions on documentation of radiographic inspection results identified on pages IV-5 and IV-6 in the CAT Report are as follows:

See Example 1 of alleged violation B for Niagara Mohawk's response for corrective and preventive action.

The date when full compliance will be achieved:

June 15, 1984