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Lynne Bernabei
GAP
Institute for Policy Studies
1901 Que Street, N.W.
Washington, D.C. 20009

In the Matter of
CONSUMERS POWER COMPANY
(Midland Plant, Units 1 and 2)
Docket Nos. 50-329 OM & OL and 50-330 OM & OL

Dear Ms. Bernabei:

It has come to my attention that the copy of the Notice of Violation package for Niagra Mohawk Power Corporation (Nine Mile Point, Unit 2) dated March 7, 1982 forwarded to you and the persons named on the service list has seven pages missing from the Inspection Report and two pages are out of order.

For your convenience, I am submitting a corrected copy of the named document.

Sincerely,

DESIGNATED ORIGINAL
Certified By Nathene A. Wright
DSC
|||

Nathene A. Wright
Counsel for NRC Staff

Enclosure: As stated

cc w/enclosure:
Charles Bechhoefer, Esq.
Dr. Frederick P. Cowan
Frank J. Kelley
Ms. Mary Sinclair
Ronald G. Zamarin, Esq.
James E. Brunner, Esq.
James R. Kates
Wayne Hearn
Myron M. Cherry
T. J. Creswell
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Docketing & Service Section

Dr. Jerry Harbour
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Alan S. Farnell, Esq.
Ms. Barbara Stamiris
Wendell H. Marshall
Paul C. Rau
Peter Flynn
Atomic Safety & Licensing Board
Atomic Safety & Licensing Appeal Panel

OFC	: OELD	: OELD	:	:	:	:
NAME	: NWright:am	: JRutberg	:	:	:	:
DATE	: 6/22/83	: 6/1/83	:	:	:	:

MAR 17 1982

Docket No. 50-410

Niagara Mohawk Power Corporation
ATTN: Mr. Gerald K. Rhode
Vice President
System Project Management
c/o Miss Catherine R. Seibert
300 Erie Boulevard, West
Syracuse, New York 13202



Gentlemen:

Subject: Inspection 50-410/81-13

This refers to the special Construction Assessment Team inspection conducted by a team headed by Mr. L. Tripp of this office on November 30-December 18, 1981 at Nine Mile Point Station, Unit 2, and corporate offices at Scriba and Syracuse, New York respectively of activities authorized by NRC License No. CPPR-112 and to discussions of our findings held by Mr. Tripp with Mr. Bartlett and other members of the NMP and S&W staff at the conclusion of the inspection.

Areas examined during this inspection are described in the Office of Inspection and Enforcement Inspection Report which is enclosed with this letter. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

Based on the results of this inspection, it appears that certain of your activities were not conducted in full compliance with NRC requirements, as set forth in the Notice of Violation, enclosed herewith as Appendix A. These items of noncompliance have been categorized into the levels described in the Federal Register Notice (45 FR 65754) dated October 7, 1980. You are required to respond to this letter and in preparing your response, you should follow the instructions in Appendix A.

In addition to the apparent items of noncompliance discussed above and in Appendix A, "Notice of Violation", findings of this inspection also indicate that a significant weakness exists in your design and construction program. This area is discussed in Appendix B, Significant Observations.

You are requested to inform this office within thirty (30) days of the date of this letter of the results of actions you have taken or plan to take to improve your design and construction program in the area of significant weakness identified in Appendix B.

RI:DETP
Tripp/pja
3/4/82

RI:DETP
Ebnetter
3/4/82

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PDR ADJOCK 05000410
PDR

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you (or your contractors) believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you (a) notify this office by telephone within ten (10) days from the date of this letter of your intention to file a request for withholding; and (b) submit within 30 days from the date of this letter a written application to this office to withhold such information. Consistent with section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part sought to be withheld, and which contains a full statement of the reasons on the basis which it is claimed that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, the report will be placed in the Public Document Room. The telephone notification of your intent to request withholding, or any request for an extension of the 10 day period which you believe necessary, should be made to the Supervisor, Files, Mail and Records, USNRC Region I, at (215) 337-5223.

The responses directed by this Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Thomas T. Martin
Thomas T. Martin, Director
Division of Engineering and
Technical Programs

Enclosures:

- 1. Appendix A, Notice of Violation
- 2. Appendix B, Significant Observations
- 2. NRC Region I Inspection Report No. 50-410/81-13

Niagara Mohawk Power Corporation 3

cc w/encls:

Leonard M. Trosten, Esquire

Carl D. Habelman, Esquire

NMPC QA

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APPENDIX A

NOTICE OF VIOLATION

Niagara Mohawk Power Corporation
Nine Mile Point, Unit 2

Docket No. 50-410
License No. CPPR-112

As a result of the inspection conducted on November 30-December 18, 1981, and in accordance with the Interim Enforcement Policy, 45 FR 66754 (October 7, 1980), the following violations were identified:

1. 10 CFR 50, Appendix B, Criterion I, states in part: "The applicant shall be responsible for the establishment and execution of the quality assurance program. The applicant may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility therefor" and "The quality assurance functions are those of (a) assuring that an appropriate quality assurance program is established and effectively executed and (b) verifying, such as by checking, auditing, and inspection, that activities affecting the safety-related functions have been correctly performed."

Contrary to the above, as of December 18, 1981, the Construction Assessment Team inspection identified quality assurance program deficiencies and/or weaknesses in several areas which considered collectively, constitute an inappropriate and ineffectively executed quality assurance program. Examples include:

- a. Cives Steel Corporation was not placing material in a hold area, nor were Stores Requisitions being written to withdraw items from storage. Material was being withdrawn by Cives construction personnel without stores requisitions, and therefore without issue authority given by designated personnel.
- b. There is a significant lack of training given to contractor personnel, especially in regards to procedures, holdpoints, and inspection requirements. Stone & Webster requires certain major contractors to comply with the S&W QA Program but does not have a formalized training program to ensure contractor personnel are aware of QA Program requirements that directly interface and affect construction activities. Numerous nonconformances have resulted from contractor personnel being unaware of QA Program controls.
- c. There is an overdependence on contractor construction personnel to monitor quality related activities. This reliance was identified in the structural steel inspection program, concrete inspection program, material release, and control of measuring and test equipment. Contractor construction personnel were relied upon to verify that weld preparations and fit-ups were in accordance with AWS 1.1, while Stone & Webster's QA Program required only random inspections by the S&W quality control personnel of weld preps and fit-ups. Numerous concrete

placements were checked by contractor construction personnel, only, for proper curing in accordance with Stone & Webster Specification NMP2-S203C, Revision 6. Cives Steel Corporation construction personnel were relied upon to issue material for erection, contrary to material control procedures. The storage and handling of measuring and test equipment was the responsibility of construction crews, without training on proper handling and storage, and without documented monitoring, surveillances and/or audits to ensure proper controls.

- d. Nonconformances are not analyzed for cause at the time they are identified, as to why the nonconformance occurred or what corrective action needs to be taken to prevent further recurrence. Rather, they are solely resolved on the technical acceptability, rework, repair, or scrap disposition, without regard to the basic cause of the nonconformance. The lack of identification and correction of the root cause of the nonconformance has led to numerous nonconformances being written in a short period of time involving the same functional area, such as the concrete curing nonconformances referenced in inspection report 410/81-12. The lack of attention to the root cause can also be seen in nonconformances referenced in Sections 2.2.2.2 and 4.1.2.2.2 of the enclosed inspection report.
- e. There is a significant problem in the timeliness of corrective action resulting from Stone & Webster responses to Niagara Mohawk audit findings. Determination of corrective action to be taken is repeatedly delayed due to either belated answers by Stone & Webster and/or inadequate responses by Stone & Webster. NMPQC Quality Assurance Management has been unable to correct the problem.
- f. Sections 2.1 and 2.2 of the Project Manual, which are to provide functional roles and position descriptions for NMPQC and S&W, have not yet been issued. In the interim, most S&W personnel have not seen and/or were not aware of the position descriptions for their jobs. In many situations, responsibilities, authorities and interfaces were based upon verbal understandings with management. Without these sections of the Project Manual, functional responsibilities of groups and duties and responsibilities of key positions within each group are not adequately covered by existing written policies and/or procedures.

Furthermore, Niagara Mohawk Power Corporation Management has contributed to the inappropriate and ineffectively executed quality assurance program through a lack of adequate management support for, and attention to, the quality assurance function. Management policies and practices have resulted in inequitable pay and fringe benefits for certain onsite QA personnel; actions which have in effect banned a QA staff member from the site; acquiescing to a high turnover rate in the QA staff, thereby diminishing the capability of the assigned QA staff, due to a lack of continuity and project specific experience, to identify and resolve quality related problems; exercising ineffective management control over its agents and contractor to promptly initiate corrective actions for identified quality problems in

project management, engineering, and/or construction; and by not providing a clear and effective enumeration of policies regarding the proposed Project Quality Organization to avoid confusion in the perceived responsibilities of existing and proposed QA organizations, hence, degrading the effectiveness of total quality assurance effort on the project.

This is a Severity Level IV Violation. (Supplement II)

2. 10 CFR 50, Appendix B, Criterion III, states in part: "Measures shall be established to assure that applicable regulatory requirements and design basis ... are correctly translated into specifications, drawings, procedures and instructions." and "The design control measures shall provide for verifying or checking the adequacy of design ... performed by individuals or groups other than those who performed the original design. ... Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design..."

Stone and Webster Engineering Corporation Standard Quality Assurance Program - SUSQAP, Section 3, Paragraph 1.5, states in part: "Design control measures shall include review and use of accepted industrial standards and practices, ... design reviews and selection and suitability of materials, parts, equipment or processes that are essential to the functions of structures, systems or components," and Paragraph 1.6, states: "Engineering drawings shall be reviewed by an individual other than originator, for adequacy of design."

SUSQAP, Appendix III, Glossary, states in part: "Verify - The act of proving that a function or requirement has been met by examining objective evidence..."

Contrary to the above, as of December 11, 1981:

- a. There was no objective evidence to show that the requirements of standard ACI-318-71 were objectively used as design inputs in the analysis of the effect of rebar substitution.
- b. There were no engineering calculations to confirm the adequacy of the design change nor was there any objective evidence of an independent design verification.
- c. There was no objective evidence to show that an adequate engineering review was done to assure that consistent cable tray separation criteria were specified and translated into erection specifications.

This is a Severity Level IV Violation (Supplement II).

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

Line 291-294 of Specification E026-A states, in part, that: "Except as specifically stated or otherwise inferred, the cable tray shall conform to the requirements of NEMA Standard VE-1."

Contrary to the above, the cable tray qualification test report No. 24781 does not address the test requirements as specified in the procurement specification E026-A.

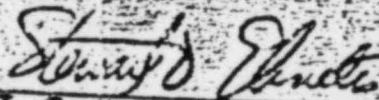
This is a Severity Level V Violation. (Supplement II)

Pursuant to the provisions of 10 CFR 2.201, Niagara Mohawk Power Corporation is hereby required to submit to this office within thirty days of the date of this Notice, a written statement or explanation in reply, including: (1) the corrective steps which have been taken and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved. Under the authority of Section 182 of the Atomic Energy Act of 1954, as amended, this response shall be submitted under oath or affirmation. Where good cause is shown, consideration will be given to extending your response time.

The responses directed by this Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Dated

MAR 17 1982



for T. T. Martin, Director
Division of Engineering and
Technical Programs

APPENDIX B

SIGNIFICANT OBSERVATIONS

Niagara Mohawk Power Corporation
Nine Mile Point, Unit 2

Docket No. 50-410
License No. CPPR-112

As a result of the inspection conducted on November 30-December 18, 1981, the following significant observation was identified in the implementation of your design and construction program.

1. The Construction Control & Completion Program (CCCP) used by S&W to monitor contractor performance is only partially effective for the following reasons:
 - a. No formal mechanism existed for followup of proposed preventative actions to insure that such actions were actually accomplished satisfactorily.
 - b. The applicable procedure (CMP 1.11) indicates that both S&W Construction and Field Quality Control (FQC) personnel can identify unsatisfactory conditions which are used as a part of the CCCP monthly analysis of contractor performance. If CMP 1.11 was implemented in a consistent manner by both Construction and FQC personnel, Construction personnel would be expected to identify more than one-half of the total unsatisfactory conditions since they inspect completed work before FQC is requested to perform their inspection activities, however, a review of a sample of unsatisfactory conditions disclosed that approximately 90% had been identified by FQC. These problems with the CCCP system appear to be attributable to inconsistent criteria being used by FQC and Construction and/or improper implementation of CMP 1.11.

The above weakness in the CCCP systems decreases its effectiveness as a tool to monitor contractor performance. Part a. was addressed prior to the end of the inspection by initiation of a formal followup/closeout mechanism reviewed by the inspector, therefore, it need not be addressed further in the Niagara Mohawk response. (Reference Section 4.1.2.2.2 of Report 410/81-13).

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U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-410/81-13
Docket No. 50-410
License No. CPPR-112 Priority - Category A
Licensee: Niagara Mohawk Power Corporation
300 Erie Blvd., West
Syracuse, New York 13202

Facility Name: Nine Mile Point Station, Unit 2
Inspection at: Scriba and Syracuse, New York
Inspection conducted: November 30 - December 11; December 17, 18, 1981

Inspectors: S. K. Chaudhary 2/18/82
S. K. Chaudhary, Reactor Inspector date signed
R. J. Paglino 2/18/82
R. J. Paglino, Reactor Inspector date signed
S. D. Reynolds, Jr. 3/18/82
S. D. Reynolds, Jr., Reactor Inspector date signed
A. E. Trigg 2/18/82
A. E. Trigg, Chief, M&PS, EIB date signed
R. K. Schuler 2/18/82
R. K. Schuler, Resident Inspector date signed
Approved by: S. D. Ebnetter 3/1/82
S. D. Ebnetter, Chief, Engineering Inspection Branch date signed

Inspection Summary:

Inspection on November 30 - December 11 and December 17-18, 1981,
(Report Number 50-410/81-13)

Areas Inspected: Announced team inspection conducted at the Nine Mile Point, Unit 2 site and NMPC Corporate offices by four regional-based and one resident inspector of quality assurance; design controls; project management; procurement control and construction controls in the electrical, mechanical and NDE areas. The inspection involved 394 inspector-hours onsite and 128 inspector-hours in the office.

Results: Of the five major areas inspected, no items of noncompliance were identified in two areas; three items of noncompliance were identified in three areas (Severity Level IV - Inappropriate and ineffectively executed quality assurance program, Sections 2.2.1, 2.2.2, 2.2.4, 2.2.5, 2.2.8, and 4.1.1; Severity Level IV - Inadequate review of design change and specification, Sections 3.1.2.4 and 5.1.7; and Severity Level V - Nonconformance with procurement specification, Section 5.1.4)

4.1.1	Program	
4.1.2	Implementation	
4.2	Documents Reviewed	-----
5.0	<u>Procurement Control</u>	-----
5.1	Areas Inspected	
5.1.1	Procurement Documents	-----
5.1.2	Document Control	-----
5.1.3	Conformance with Procurement Documents	-----
5.1.4	Specification Changes	-----
5.1.5	Qualification of Suppliers	
5.1.6	Specification Review	
5.1.7	Detection of Reactor Coolant Leakage	-----
5.1.8	Cable Tray Spacing	
6.0	<u>Electrical</u>	
6.1	Areas Inspected	
6.1.1	Equipment Storage In-Place	-----
6.1.2	Receiving and Storage Documentation	
6.1.3	Storage Facility	-----
7.0	<u>Mechanical and NDE</u>	-----
7.1	Previous Open Items	-----
7.1.1	Licensee Actions on Previous Inspection Findings	
7.2	Areas Inspected	
7.2.1	Visual Observation of Welding	
7.2.2	Welding Material Control	
7.3	Documents Reviewed	
8.0	Unresolved Items	
9.0	Exit Interview	-----

- (1) C. Millian, Lead Quality Engineer-Construction
- (2) R. Norman, Supervisor, Quality Assurance, NMP #2
 F. Osypiewski, QA Engineer (Group Leader, Electrical & Steel Group)
- (1) D. Palmer, Supervisor, Quality Assurance, NMP #1
 D. Pracht, Lead Mechanical Engineer
- (1) J. Ptak, Manager of Construction
- (2) G. Rhode, Vice President-System Project Management
- (1) W. Rumberger, Assistant Project Manager, Operations
 D. Sandwick, Lead Quality Engineer-Headquarters
 J. Saurina, Lead Civil Construction Engineer
 R. Smith, Jr., Mechanical Construction Engineer
 J. Swenszkowski, Assoc. QA Technician (Group Leader, Piping/NSSS Group)
- (2) C. Terry, Manager, Project Engineering
Stone and Webster Engineering Corporation (S&W)
 L. Alley, Senior Construction Supervisor
 L. Barsuck, Office Supervisor
- (1) R. Barnard, Field Quality Control (FQC), Boston Office
 J. Burgess, QA Supervisor
- (1) K. Conkad, Construction Completion Control Program (CCCP) Administrator
 C. Corso, Electrical Engineer
 S. Crowe, Assistant Supt., FQC
 L. Dalhaus, Lead Electrical QC Engineer
- (1) C. Deban, Senior Records Supervisor
 D. Boe, Lead Materials Engineer, Cherry Hill

1.2

- (1) E. Eichen, Asst. Supt. of Engineering
 J. Ellis, Chief Construction Supt., Welding
- (4) T. Farrell, Principle Structural Engineer
 D. Friedrich, Chief Construction Engineer
 K. Goodness, Material Controller
 T. Giler, CCCP Administrator
- (4) A. Gual, Principle Electrical Engineer
 R. Hardison, QC Engineer
- (4) M. Hazzan, Power Engineer
 J. Hinton, Calibration Inspector
- (4) E. Hubner, Lead Controls Engineer
 R. Huggon, QC Engineer
- (1) J. Huston, Asst. Project Manager, Operations
- (1) R. Kelly, Vice President & Manager, Corporate QA
 R. Kebien, Senior QC Engineer
 H. Kenyon, Senior FQC Inspector
 S. Lazarek, Structural Engineer
 J. Logewski, Calibration Inspector
 E. Magilley, Asst. Supt. of FQC
 R. Nagel, Training Coordinator
 B. Niyogi, Mechanical Engineer (seismic)
- (1) M. Oleson, Asst. Supt. of Engineering
 P. Osborn, Office Engineer
- (1) G. Pace, Manager, Project Quality Assurance
 N. Palmer, Senior Welding Supervisor

- C. Patrick, Construction Welding Supervisor
- G. Philippi, Lead Structural-Mechanical Engineer
- B. Pierce, Training Specialist
- (1) G. Pierce, Site QA Supervisor
- H. Pierce, Chief Office Engineer
- R. Plant, Manager, FQC
- (4) J. Posusney, Principle Structural Engineer
- B. Poythress, Materials Manager
- N. Sedgley, Asst. Supt. of Construction
- (1) L. Shea, Supt. of Engineering, Site Engineering Group
- (1) F. Sheldon, Supt. of Construction
- (4) M. Stocknoff, Radiation Protection Engineer
- C. Sperling, Senior Material Controller
- (4) L. Theriault, Principle Piping Engineer
- (1) J. Thompson, Supt. of FQC
- (4) S. Tsombaris, Electrical Engineer
- (1) R. Wagner, Resident Manager & Senior Site Representative
- R. Wisecarver, Concrete Construction Supervisor
- (1) C. Zappile, Project Engineer

1.3

Other

- J. Conlon, Chief Field Engineer, Walsh Construction Company
- J. Flannery, Material Control Coordinator, L.K. Comstock & Co.
- D. Giguere, QC Manager, ITT Grinnell
- P. Lockwood, Senior Document Control Engineer, L.K. Comstock & Co.

B. Pion, Mechanical Engineer, ITT Grinnell

K. Williams, Asst. Field Administrator, Cives Steel Corporation

- (1) Denotes those present at the 12/11/81 site exit meeting
- (2) Denotes those present at the 12/18/81 exit meeting at Syracuse
- (3) Denotes those present at the 12/11/81 and 12/18/81 exit meetings.
- (4) Contacted via telephone at the S&W Cherry Hills Office.

In addition to those listed above, the inspectors contacted other representatives and/or employees of the above organizations during the course of this inspection.

2.0

Quality Assurance

The QA inspection effort covered licensed activities in selected functional areas. In each of the functional areas the inspector reviewed written policies, procedures, and instructions; interviewed selected personnel; and reviewed selected documents to determine whether:

- The licensee had written policies, procedures, or instructions to provide management controls in the subject areas;
- The policies, procedures, and instructions as implemented, were adequate to assure compliance with the regulatory requirements.
- The program provided indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency was achieved and maintained.

2.1

Site Organization

Ultimate responsibility for quality assurance at the Nine Mile Point, Unit 2 Power Station rests with Niagara Mohawk Power Corporation. Niagara Mohawk has contracted with Stone & Webster Engineering Corporation to maintain and implement separate but subsidiary Quality Assurance Programs for Nine Mile Point, Unit 2, responsive to and designed to satisfy the intent of the Quality Assurance Criteria of Appendix B. Stone & Webster, in carrying out this function, has some contractors complying with Stone & Webster's QA Program, while others have their own QA Programs, which have been approved by Stone & Webster. For example, L.K. Comstock and Company (permanent plant electrical contractor), Walsh Construction Company (civil contractor), and

Cives Steel Corporation (structural steel contractor) operate under Stone & Webster's QA Program. ITT Grinnell (piping contractor) and Chicago Bridge & Iron (liner and biological shield wall) operate under their own QA Programs. This situation is somewhat unique and appears to have contributed to noncompliance examples as discussed in Sections 2.2.1 and 2.2.2 of this report. Niagara Mohawk regularly conducts scheduled audits and performs continuous surveillances of Stone & Webster and contractors at the site. The quality control inspection efforts are carried out by Stone & Webster and contractor personnel.

2.2

Areas Inspected

The inspection has been divided into the following areas: quality assurance/quality control implementation, training, document control, control of materials, nonconformances and corrective action, records, and audits.

2.2.1

Quality Assurance/Quality Control Implementation

In general, the overall quality assurance program and the QA/QC organizations of Niagara Mohawk and Stone & Webster have the essential elements to control construction activities; however, specific practices were observed that appear to be a departure from industry standards such as ANSI QA standards and/or practices designed to ensure effective quality control.

Stone and Webster Engineering Corporation has been overdependent on contractor construction personnel to identify quality related problems and monitor quality related activities, especially dependent on those contractors without their own QA Programs, who are required to comply with Stone & Webster's QA Program. This reliance was identified in the structural steel inspection program, concrete inspection program, material release, and control of measuring and test equipment as discussed below. It is an example of noncompliance with 10 CFR 50, Appendix B, Criterion I (410/81-13-01).

2.2.1.1

Stone & Webster was relying on Cives contractor construction personnel to verify numerous weld preparations and joint fit-ups for structural steel welding. Stone & Webster's QA Program required only random inspections by quality control personnel of weld preps and fit-ups to verify compliance with AWS D1.1 and ANSI N45 2.5, 1974. The sampling (random) procedure was not based on recognized standard practices per ANSI N45.2.

2.2.1.2

Stone & Webster was relying on Walsh contractor construction personnel to verify that numerous concrete placements were cured in accordance with Stone & Webster Specification NHP2-S203C, Revision 6, and ANSI N45 2.5, 1974. Stone & Webster's QA Program only required, as a minimum, the following curing checks:

<u>ADT</u>	<u>Number of Inspections Per Week</u>
------------	---------------------------------------

Below 40°	4
Above 40°	1

As discussed in Inspection Report 410/81-12, several of these inspections were not performed resulting in a series of noncompliances.

In addition, from July 27, 1981, to October 29, 1981 there were thirty nonconformances written by Stone & Webster resulting from missing or mislocated dowels in concrete pours. The missing dowels were identified by Walsh contractor construction personnel, after Stone & Webster field quality control personnel had inspected and failed to identify the missing dowels.

2.2.1.3

Stone & Webster was relying on Cives contractor construction personnel to control and issue material, as discussed in Section 2.2.4 of this report, contrary to Stone & Webster Construction Methods Procedures.

2.2.1.4

Stone & Webster was relying on contractor construction personnel to properly handle and store calibrated measuring and test equipment, without documented surveillances or audits of storage and handling activities. In addition, training was not being given to contractor personnel on proper handling and storage. Stone & Webster's QA Program addressed the singular aspect of calibration control on a time interval basis such as 6 months or 12 months, as applicable, but failed to address control between required calibration intervals. Calibrated measuring and test equipment was issued to construction personnel, and need not be returned to Stone & Webster until the item needed re-calibration, in accordance with the pre-established calibration interval. An item was to be returned to Stone & Webster, if found damaged, prior to the elapsed calibration interval, but controls had not been implemented to reduce the possibility of damage and maintain calibrated instruments during the calibration period. Niagara Mohawk auditors identified this lack of control in Nonconformance Report #314, dated July 13, 1981, which stated in part that calibrated equipment was handed from one construction personnel user to another.

2.2.2 Training

2.2.2.1

Stone & Webster's training and qualification program for Quality Control personnel responsible for inspections was evaluated against ANSI N45 2.6, 1978 and the alternatives specified in the September 14, 1981 NMPC letter to the Office of Nuclear Reactor Regulation.

The inspector also reviewed qualification records for Niagara Mohawk Quality Assurance personnel to see that their experience and training was commensurate with the scope, complexity or special nature of the activities to be audited.

No items of noncompliance or significant observations were identified.

2.2.2.2

Stone & Webster's training program for contractor personnel, who are required to comply with Stone & Webster's QA Program, was reviewed to ascertain that the program provided indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.

The inspector found that there was a significant lack of training given to contractor personnel, especially in regards to procedures, hold points, and inspection requirements. The majority of the training was in safety programs, rather than Stone & Webster's QA Program, which contractor personnel were required to follow. The inspector identified nineteen nonconformances which were written by Stone & Webster in a period from February 11, 1981 to November 16, 1981, resulting from contractor personnel not being aware of the Stone & Webster QA Program in regards to procedures, hold points, and inspection requirements. The applicable contractor and nonconformance and disposition reports are listed below.

<u>Walsh</u>	<u>Cives</u>	<u>L.K. Constock</u>
2016	2142	2187
2047	2160	2275
2085	2455	2332
2103	2468	2649
2111	2511	
2198	2592	
2375		
2508		

In addition, Niagara Mohawk stated on July 28, 1981 in Nonconformance Report #315, "Of the 19 contractors on site, less than half have participated in any structured form of training."

As discussed above in Section 2.2.1, there is an overdependence on contractor personnel to identify quality related problems.

This is further compounded by a lack of QA training for contractor personnel. This is a further example of noncompliance with 10 CFR 50, Appendix B, Criterion I (410/81-13-01).

2.2.3

Document Control

The document control program was reviewed for conformance to regulatory requirements, Quality Assurance Program Requirements, and applicable industry guidance and standards. Drawings and procedures were reviewed for current revisions, distribution lists, and assigned responsibilities. EDCR's were checked for issuance and affected drawing control.

No items of noncompliance or significant observations were identified.

2.2.4

Control of Material

Receipt and storage of equipment and material was reviewed to ascertain whether the licensee was implementing a QA program that was in conformance with regulatory requirements and commitments in the Quality Assurance Program, implementing procedures, and in accordance with ANSI N45-2.2, 1972. The inspector verified that responsibilities were assigned for receipt, acceptance, storage, and release. Nonconforming items were reviewed for identification, segregation, control, and release. Receipt inspection reports were examined for applicable signatures, justification for use, damage recorded, and stipulated inspection criteria. Procedures were reviewed for levels of storage and appropriate environmental conditions.

Cives Steel Corporation was not in compliance with the procedures Stone & Webster had written to control the issuance of material to the field. Cives was neither placing received material in a hold area as required by CFP No. 1.2-11.81 - Receiving Material and Equipment, Section 2.7.1, nor writing stores requisitions to withdraw items from storage as required by CFP No. 1.3-2.79 - Material/Equipment Storage, Section 5.10.5. This is contrary to 10 CFR 50, Appendix B, Criteria I and VIII. Stone & Webster personnel were not involved in the issuance of material as required by their program, but were relying on Cives construction personnel to control issuance. The inspector noted that two Noncompliance and Disposition Reports had resulted from Cives bypassing the material release control system, installing rejected material delineated on N&DR #2592, dated October 15, 1981 and installing uninspected material delineated on N&DR #2160, dated November 11, 1980. If an item was on hold or in reject status, construction personnel were relied upon not to take an item for erection, rather than depending on the material requisition process and field quality control interfacing.

This is another example of noncompliance with 10 CFR 50, Appendix B, Criterion I (410/81-13-01).

2.2.5

Nonconformances and Corrective Action

The inspector reviewed this area to verify that measures have been established to identify and correct conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment. Corrective action taken to preclude repetition was also examined. The area of nonconformances was reviewed for prompt identification and correction.

2.2.5.1

Nonconformances were not analyzed on an individual basis at the time they were written, as to why the nonconformance occurred or what corrective action needed to be taken. Rather, they were solely resolved on the technical acceptability, rework, repair, or scrap disposition, without regard to the root cause of the nonconformance. Trend analysis was done by Stone & Webster on a six month and one month basis. The lack of prompt identification and correction of the root cause of the nonconformance has led to numerous nonconformances being written in a short period of time involving the same functional area, as in the case of concrete curing nonconformances referenced in Inspection Report 410/81-12. In addition, one significant nonconformance may require prompt corrective action as stated in 10 CFR 50, Appendix B, Criterion XVI. The analyzing of nonconformances on a individual basis can also pinpoint program weaknesses. This is another example of noncompliance with 10 CFR 50, Appendix B, Criterion I. (410/81-13-01)

2.2.5.2

The inspector observed that there was a significant problem in the timeliness of corrective action in regards to Niagara Mohawk audit findings. This problem was largely due to the delay in getting Stone & Webster to answer Niagara Mohawk audit findings concerning the Stone & Webster Quality Assurance Program and the inadequacy of Stone & Webster responses on numerous occasions. There appeared to be a light regard for Niagara Mohawk audit findings. Stone & Webster not only didn't comply with requested response dates, but even missed extension dates granted by Niagara Mohawk. For example, Niagara Mohawk identified in July of 1981, Nonconformance #315, a significant training problem at the site and requested a reply by August 28, 1981. As of December 8, 1981, no response had been given.

Examples of other audit findings and response delays were seen on Nonconformance Report No's. 311 thru 314, 308, 309, 300, 298, and 297. Nonconformance #297, dated 1/5/81, was still open. Nonconformance Reports 297 and 298 required additional responses due to the nature of the first response. Another example of an inadequate response was verified concerning a Niagara Mohawk storage finding, delineated on Nonconformance

Report #309, dated July 17, 1981. The finding stated that a 24" control valve for reactor recirculation was not being stored in a controlled atmosphere as required by the manufacturer and that the present containment building storage area was a high humidity area and therefore, preventive maintenance was needed. Stone & Webster's response dated August 14, 1981 stated that the containment was not a high humidity area and no preventive maintenance was being performed because none was required. The inspector, through inspections, has verified that the containment is frequently subject to high humidity conditions.

Various Quality Assurance Management personnel stated during interviews that they were not at all satisfied with the type of responses from Stone & Webster, nor the time delays in obtaining the responses. Corrective action on Niagara Mohawk audit findings is far from timely and requires added attention. The inspector questioned why top management had not taken steps to correct this situation. This is another example of noncompliance with 10 CFR 50, Appendix B, Criterion I: (410/81-13-01)

2.6

Record Control

The records program was reviewed to ascertain that the licensee was implementing a program relating to the control of records that was in conformance with regulatory requirements, Quality Assurance Program, and ANSI N45 2.9-1974. Record storage controls were reviewed along with means of transferring records to the vault. Various records were reviewed for implementation of the program and personnel were interviewed concerning storage, access, and retrievability. The record index was examined and the Stone & Webster vault was checked against the criteria of ANSI N45 2.9-1974.

No items of noncompliance or significant observations were identified.

2.7

Audits

The licensee's audit program was reviewed to ascertain whether the licensee has developed and implemented a program that is in conformance with regulatory requirements and applicable industry guides and standards. The inspection included verification of the following: scope of the program is consistent with PSAR requirements; responsibilities for overall management of the program has been assigned, and auditors were qualified in accordance with the nature of the activities to be audited.

No items of noncompliance or significant observations were identified.

2.2.8 Management Involvement

2.2.8.1 Proposed Reorganization of Quality Function

The requirements of NRC dictate that the licensee establish a quality assurance program such that the program is appropriate and effectively executed.

To assess the extent of the appropriateness and effectiveness of the licensee's present and proposed quality assurance program, the inspector reviewed the organizational structure of the present QA organization and the proposed organization of Project Quality, the staffing plan for the new organization, and the qualification of the designated staff members of the new organization. The inspector also held discussions with the cognizant personnel of both the existing and proposed organization to determine their perception of the responsibility of each organization, the understanding of their functions and any potential interface problems.

Based on the review of documents and discussions with cognizant personnel, the inspector determined that there appeared to be an excessive turnover in the present QA organization inasmuch as there were only three members who have been in QA for over a period of three years, and they were all stationed off-site in the NMPC corporate headquarters in Syracuse, New York. The inherent instability of QA staff due to excessive turnover did raise a question as to the effectiveness and capability of the QA organization to identify and resolve quality issues.

Furthermore, by review of the staffing structure, and the scope of the responsibility as perceived by the management of the newly proposed Project Quality Organization, the qualification of assigned personnel, and extensive discussion with the management, the inspector observed that the personnel assigned to the new PQO did not have adequate training and experience to carry out the functions of a QA organization. Moreover, the responsibility as perceived by the management of PQO was not consistent with the department's functions as described in the submittal to NRC.

2.2.8.2 Management Support

The number and nature of the findings in the QA area as described previously in this report led to further examination of the degree of NMPC Management support received by QA. The inspector found through interviews that some onsite NMPC QA personnel working on the NMP-2 project were not treated the same as other onsite employees. That is, in their efforts to increase staffing levels on the NMP-2 project, NMPC management initiated a policy in the Spring of 1981 wherein NMPC employees with permanent residences more than 20 miles from the site who were transferred to the NMP-2 site received a 10% pay bonus and a commuting mileage allowance. This had been

retroactively applied to all NMPC employees commuting more than 20 miles to the NIP-2 site except for QA employees. There were three QA employees onsite who commute more than 20 miles from their permanent residences and did not receive such allowances.

In another situation, a former QA engineer applied for, and received a September, 1981 transfer from QA to a position as a discipline engineer in the NMPC project organization. With his transfer from QA, he became eligible for, and now receives the special bonus and commuting allowance.

Thus, onsite QA personnel are treated in an inequitable manner, thereby leading to financial disincentives to remain in QA. This demonstrates a lack of NMPC management support for QA and/or an insensitiveness on the part of management to the inequities that they have permitted. It is perceived by NMPC personnel to be an indication of lack of corporate management support and/or lack of QA management influence.

2.2.8.3

Allegation

On December 11, 1981, NRC received anonymous allegations via the NIP-2 Resident Inspector's phone relating to the Niagara Mohawk Quality Assurance Program. These allegations reinforced most of the NRC findings and concerns in this area up to that point. The allegor's basic concern appeared to be with the attitude of the utility management toward quality assurance. Examples given were, barring of certain QA people from the site, poor responses to Quality Assurance Audits and Quality Control Inspection Report findings, and unfair treatment of QA personnel, allegedly because they had generated the findings. He further stated that because of this poor attitude, there had been a large turnover of QA personnel. He also stated that he was concerned about the new Proposed Quality Organization in that it might circumvent the existing QA program. Each of these items is discussed below.

2.2.8.3.1

Barring of QA People from the Site

In interviews subsequent to the allegation, the inspector identified a NMPC QA staff member who had effectively been barred from the site. In discussing this situation with the NMPC Manager of QA, it was disclosed that he had received a written directive from the Executive Vice President directing him to not use that individual on the NIP-2 project. He no longer had a copy of that directive, nor did the Executive Vice President. The inspector questioned whether or not this individual was actually being used on NIP-2 since the organization charts indicated such an assignment. By reviewing this individual's time sheets for October and November, 1981, it was finally

established that he had been spending most of his time on NMP-2. The Corporate Manager of QA indicated that this individual's involvement on NMP-2 had been limited to in-office activities. Furthermore, he expressed concern that even that usage on the project was counter to the Executive Vice President's wishes.

Pursuit of this matter with the QA Manager's immediate supervisor (Vice President) and the Executive Vice President disclosed that their understanding and memory of this matter was that the Executive Vice President had directed that the individual in question not be employed as a QA supervisor, but did not bar him from working on the NMP-2 project. The individual in question was absent and not available for interview.

The circumstances surrounding the above including the apparent miscommunication could be construed as barring the QA individual in question from the NMP-2 site.

2.2.8.3.2

Poor Responses to QA Audits and QC Inspection Findings

The inspectors had already made a similar finding as discussed in Section 2.2.5.2. In further discussions with NMP-2 QA personnel, it was acknowledged that responsiveness to QA audit findings was somewhat less than desired. It was indicated that this lack of responsiveness could be partially attributed to preoccupation by QA Department Management with the proposed reorganization of the quality responsibilities for NMP-2 which decreased their efforts in pursuit of resolution of audit findings. Also, it was noted that there appeared to be a reluctance on the part of QA Department Management personnel to utilize NMP-2 Project Management in exerting influence/pressure in resolving audit findings.

2.2.8.3.3

Unfair Treatment of QA Personnel

As discussed in Section 2.2.8.2, the inspector had previously found that NMP-2 QA personnel with onsite assignments were not receiving the same pay and benefits as other onsite NMP-2 personnel. No other instances of unfair treatment of QA personnel were identified in subsequent followup of this part of the allegation.

2.2.8.3.4

Large Turnover of QA Personnel

The inspectors had previously established that high turnover rates had occurred in QA (Section 2.2.8.1). It was noted that difficulties (delays) had been encountered in obtaining upper management authorizations to replace QA personnel who had previously been working on NMP-2, but had transferred or quit. The Executive Vice President attributed this delay to his desire to wait and see what new staffing levels would be required in QA with the proposed reorganization of the QA effort.

2.2.8.3.5

Possible PQO Circumvention of Existing QA Program

The inspectors had previously voiced the same concern to NMPC management; at the end of this inspection, it remained an item to be resolved between NMPC and NRC.

2.2.8.4

Conclusion

In summary, it was found that there was a lack of strong positive management support to QA and attention to QA personnel matters. Findings in this area include a high rate of turnover of QA personnel, inadequate prior QA/QC experience of several staff members assigned to the Project Quality Organization (PQO), significant differences in the perceived charter for the proposed PQO as expressed by the Quality Assurance Department, Project Management and the Manager of PQO, inequitable pay and fringe benefits for some onsite personnel and management actions which have in effect barred a QA person from the site. These findings taken together with other findings of this inspection show a lack of management effectiveness in executing the quality assurance program. This lack of effectiveness can be partially attributed to lack of management support to the QA Department as evidenced by inadequate attention and/or actions on personnel matters. This has had an adverse impact on the capability and effectiveness of the quality assurance effort. This is a further example of noncompliance with Criterion I of 10 CFR 50, Appendix B which requires that quality assurance functions be effectively executed (410/81-13-01).

Documents Reviewed

The inspector reviewed the documents of Niagara Mohawk and Stone & Webster as detailed below:

Niagara Mohawk

Quality Assurance Manual
Quality Assurance Procedures
Degree of Compliance With
Regulatory Guides

AMP 2, Project Manual, Volume II

Stone & Webster

Quality Assurance Program
Manuals
Quality Standards
Quality Assurance Directives
Quality Control Instructions
Construction Methods
Procedures 1.2-11.81,
1.3-2.79, and 11.1-4.81

Project Specification #16

3.0

Design Controls

The purpose of this part of the inspection was to determine if the site design interfaces were effective, the design controls applied to on-site design activities were commensurate with those applied at the corporate offices, and that on-site design documents were current.

3.1

Areas Inspected

3.1.1

Program

The responsibility for design and design control has been delegated by NRC to the principal contractor, Stone & Webster Engineering Corporation (S&W). The Licensee's direct participation in design and its control was found to primarily consist of review and approval of selected design packages, and audit of design activities. Stone & Webster Engineering Corporation, however, had a comprehensive system of design controls applied at all facets of design effort in its Cherry Hill Operations Center. These controls were adequately proceduralized in S&W's Engineering Assurance Procedures Manual (EAPs).

3.1.1.1

On-Site Design by Site Engineering Office (SEO)

The inspector held discussions with S&W engineers assigned to SEO to determine the extent of SEO involvement in on-site design and approval of design changes originated in the field. The inspector also reviewed documents maintained in SEO for controlling design and design changes. The inspector determined that there was no significant design activity performed at site by SEO; therefore, there were no site specific procedures required and/or available at site to control original design. The design change activities were controlled by the E&DCR system, which was a company wide procedure followed by most S&W nuclear projects.

3.1.1.2

Design Interfaces

The inspector determined that all design interfaces were controlled by EAPs, however, since there was no significant design activity on-site, no significant design interfaces existed and/or were required on-site. All the required interfaces were controlled and executed at CHOC of S&W.

3.1.2.1

Design Change Control (E&DCRs)

The inspector reviewed S&W procedure EAP.6.5, which controlled the initiation, problem resolution, and distribution of Engineering

and Design Coordination Reports. The E&DCRs were found to be the primary vehicle to initiate, resolve and/or implement changes to an approved design document such as specifications, drawings, etc. The inspector noted that the procedure EAP-6.5 also allowed the use of E&DCRs system for documenting interpretations and/or clarifications of design requirements, and site-project technical communications. The inspector considered the procedure adequate to control design changes.

3.1.2

Program Implementation

3.1.2.1

Design Document Control

The inspector reviewed the status of several drawings, specifications, and design changes to assure the effectiveness of measures established for their adequacy, approval, currency of revisions, and/or posting of changes. The major portions of this audit were carried out in conjunction with the documents reviewed for the design control audit. No items of noncompliance were identified.

3.1.2.2

Specification/Drawing Station Control

The inspector reviewed the drawings and E&DCRs located at the drawing station at SCM's engineering area in the construction offices, and specifications and specification changes to purchase specifications in the warehouse offices to assure the currency of drawings and specifications, completeness of information, posting of changes, and conformance to procedural controls. The inspector determined that the drawings and specifications were current. The changes had been posted and procedural control was adequately applied to assure completeness and currency of design information.

No items of noncompliance were identified in this area.

3.1.2.3

Implementation of E&DCR System

The inspector reviewed a random selection of Engineering and Design Coordination Reports for conformance to the requirements of project procedures, completeness, and validity and basis of the changes approved through the E&DCR system. The inspector also held discussions with licensee and A/E personnel regarding control, distribution and implementation of such changes.

The inspector determined that the E&DCRs generally complied with the procedural requirements with respect to format, adequate problem description and resolution, and proper approvals. The inspector did note that due to the E&DCR systems' applicability to other areas, i.e. interpretations/clarifications and technical communications, there is an over use of the E&DCR form.

3.1.2.4

Rebar Design Change

In addition to the above general observations, the inspector specifically noticed that in the month of November, 1979, E&DCR #P00692 was initiated by Project engineering to modify the rebar purchase specification, S203E. The structural reinforced concrete design of KMP2 was based on grade 40 rebars, and the rebar purchase specification specified the correct grade of rebar (ASTM 615, grade 40) to be supplied to site to fulfill the design basis. By modifying the purchase specification to allow a different grade of rebar to be supplied for use in the construction, the reinforced concrete structures, however, did not meet the basic design assumptions, and the rebar detailing based on such design. The inspector pointed out to the licensee his commitment to Uniform Building Code, ACI-318-71, which limits the amount of rebar to 75% of the amount required for balanced ratios of concrete and steel (ACI-318, Section 10.3) in certain structural members. The inspector stated that in view of substituting grade 60 rebar for grade 40 rebars on a one to one basis, the inspector expected to see objective evidence of evaluation and/or an analysis documenting the justification for this change. The licensee indicated that the substitution of rebar was based on engineering judgment, and there was no documented evaluation or analysis to support the change. The licensee, therefore, could not provide any objective evidence to the inspector to justify the design change of substitution of rebars. The regulations of 10 CFR 50, Appendix B, require that the changes to the original design be subjected to the same controls, such as verifying and checking the adequacy of design, as applied to the original design. And, because the original structural reinforced concrete design using grade 40 rebar was not based on engineering judgement alone, the change in design permitting a different grade of rebar to be used one for one without a documented analysis and/or evaluation was improper.

Based on the above observations, the inspector determined that:

- There was no objective evidence to support that the appropriate design input, i.e., ACI-318-71, was correctly translated into the design change, nor that the impact of the change on overall design had been analysed.
- There were no engineering calculations to confirm the adequacy of the design change nor was there any objective evidence of an independent design verification.

This is an item of noncompliance (410/81-13-02).

3.1.2.5

Design and Installation of Cable Tray Supports
(threaded welded studs)

The inspector reviewed the design and analysis of cable tray support #RC-240, performed a visual inspection of the installed support; held discussions with cognizant licensee and A/E personnel to determine the technical adequacy of design and procedural controls over the design/analysis activities; examined evidence of independent review of the design as well as correctness and completeness of the design requirements/data transfer to construction/erection documents; and compared the conformance of the erected support to the design requirements.

No items of noncompliance or deviations were identified.

3.1.3

Management Involvement

The inspector held discussions and reviewed documentation to assess the extent of management involvement in the evolution and control of the design process.

Based on the discussions, and procedures and records furnished by the licensee, the inspector determined that the licensee management regularly reviewed the adequacy of control procedures, the licensee's engineering staff regularly reviewed and commented on conceptual design packages of selected systems in the plant; and the Design Control Issue (DCI) system has been recently revised through a new contract negotiation with S&W to redefine and establish the extent of licensee management involvement in the design process.

No items of noncompliance were identified.

3.1.4

Availability and Traceability of Records

The inspector reviewed the status of design and design change records to assess the availability of records, and the traceability of information, data and/or the record itself for retrieval and review purposes. This inspection was performed in conjunction with other parts of this inspection and records review. The inspector determined that the records and the data contained in those records were generally traceable to source, the documentation was reasonably retrievable, and the records management program as applied to design, appeared adequate to fulfill the project need.

No items of noncompliance were identified.

3.2

Documents Reviewed

The following is a list of primary document reviewed during the course of this part of inspection.

3.2.1

Niagara Mohawk Power Corporation

- Nine Mile Point Unit 2 Project Manual, Volumes I-V.
- Niagara Mohawk QA Manual.
- Niagara Mohawk QA Procedures Manual.
- Degree of Compliance with Regulatory Guide for Nine Mile-2 Project.
- Project Guidelines - 32.
- Project Guidelines - 33.
- Project Organization Charts.
- Various letters and memoranda regarding DCI package reviews.

3.2.2

Stone and Webster Engineering Corporation

- Engineering Assurance Procedures Manual.
- Quality Standards Manual.
- S&W Specification 203E.
- S&W Drawings EC-41A-2 and EC-42C-5.
- S&W, Category I, Cable Tray Support Analysis for Support #RC-240; Calculation Item #E340-TAB6, pp. 112-118.
- On-site Rebar Fabrication Requests.
- Material Receiving Reports for Rebar.
- A random selection of E&DCRs.
- A random selection of N&Ds.
- Various project Memoranda regarding design and interpretation of requirements.

4.

Project Management

The objective of this part of the inspection was to determine the effectiveness of project management by examining management support of project requirements and commitments, responsiveness to project needs and management involvement in all aspects of the project. Primary emphasis was on the NMPC and S&W organizations and their support of the construction effort. This portion of the inspection was directed towards verification that Project Management was exercising control in a manner that will assure a quality product (plant).

4.1

Areas Inspected

4.1.1

Program

The inspector examined organization charts, lines of authority and communication, interface controls, systems for management reporting and mechanisms for change control. Program procedures applicable to these activities are primarily contained within the joint NMPC-S&W Project Manual. A project manual was developed early in the life of the NMP-2 project. In 1980, a management audit was performed which identified the need to expand the scope of the original manual to clarify and document the overall management philosophy on the project. This was accomplished by restructuring the existing two-volume Project Manual into five volumes, each serving a specific project purpose.

The Project Manual was found to contain project policy, objectives, division of responsibilities, and procedures/guidelines that expand upon, and implement the intent of the overall project management plans, the NMPC/S&W contract, corporate policies and procedures (both NMPC and S&W), and licensing/regulatory requirements and commitments. Most of the procedures in the Project Manual have been issued within the past year with several other project procedures currently being developed. The Project Manual was estimated (by the inspector) to be more than 75% complete.

Most project activities were found to be adequately addressed with the following exception. Sections 2.1 and 2.2 of Volume 2 of the Project Manual are to provide functional roles and position descriptions for the organizations assigned to the NMP-2 Project by NMPC and S&W respectively. These two sections are to define the functional structures for each corporation's Project organization, describe the Project functional responsibilities of each group within the respective organizations, and identify the duties and responsibilities of key positions within each group. These sections of the project Manual had not yet been issued. Examination of draft copies of these sections and discussion with personnel responsible for coordination of Project Manual development indicated that these

sections of the manual are intended to be quite specific (definitive). This is expected to include detailed position descriptions for key personnel and detailed definition of duties and responsibilities. The difficulties in developing these sections of the Project Manual appear to be partially due to differences in opinion between NRPC and S&W with respect to how much detail should go into these procedures. Issuance of these manual sections is currently projected for early 1982. In the interim, the inspector was unable to find any comparable formal (written) descriptions of organizational and position roles, duties and responsibilities. Furthermore, interviews with numerous S&W personnel disclosed that they had not seen and were not aware of written position descriptions for their jobs. Their understanding of their job duties, responsibilities, interfaces, etc. were based almost entirely on verbal directions and understandings with their management. NRPC personnel were found to have individual job descriptions, but organizational duties and responsibilities lacked written definition similar to S&W. This lack of written definition of organizational and position duties and responsibilities is identified as a further example of noncompliance with 10 CFR 50, Appendix B, Criterion I. (410/81-13-01).

Implementation

Planning

Additional management involvement, reviews and controls were observed to be initiated when trouble spots were identified. Interfaces between NRPC/S&W and various contractors are handled in various ways with considerable reliance on regularly scheduled meetings with each contractor which are attended by representatives of all interfacing organizations. Staffing/personnel within the NRPC and S&W organizations appeared to be adequate in terms of numbers, education and experience based on inspector interviews with personnel at all levels within these organizations. It was noted that there had been more than a doubling of the NRPC staff assigned to the NRP-2 project within the past year. This appeared to be primarily in response to the recommendations contained within a NRPC requested external management audit by Black and Veatch and a New York Public Service Commission directed management audit by Theodore Barry & Associates.

No noncompliances or weaknesses were identified in this area.

Activity Review

Construction Deficiency Reports (CDR's)

The inspector reviewed documentation and held discussions with licensee's cognizant personnel to determine the policies and

procedures for identifying, evaluating, and reporting of construction deficiencies to the NRC as required by section 55(e) of 10 CFR 50.

The inspector determined that the existing QA/QC program was relied upon for the identification of any deficiency. The licensee, however, had established a specific procedure for prompt evaluation and reporting of such deficiencies to NRC. The current project procedure controlling CDRs required that any identified deficiency must be evaluated within five days to determine its reportability. If the evaluation could not be completed in the five working days, then the deficiency must be reported to NRC as a potential problem and the final report submitted to NRC as soon as possible. The inspector reviewed a random selection of reports submitted to NRC, and found that they conformed to the project requirements regarding the identification, evaluation, and prompt reporting to NRC.

No items of noncompliance were identified.

1.2.2.2

Performance Reviews

S&W was found to have a comprehensive system for verifying and reviewing completion of construction work by contractors in conformance with engineering and contractual requirements. It is called the "Construction Control & Completion Program" (CCCP) as covered by Construction Method Procedure (CMP) No. 1.11-8.79. In this system, a Construction Completion Checklist (CCC) form is completed by S&W construction personnel (Construction Supervisor) monitoring contractor performance to attest that work has been accomplished in accordance with approved drawings and specifications. These CCC forms contain various entries (attributes) that are to be evaluated, witnessed and/or verified as work is completed. S&W Construction Supervisors are to record the results of such inspections as "satisfactory" or "unsatisfactory" in the appropriate blocks of the CCC form.

For contractors for which S&W has total quality responsibility and FQC performs all quality control inspections, the system functions in the following manner. Completed units of work are presented by contractor personnel as ready for FQC inspection. S&W Construction Supervisors inspect the work, and if satisfied, actually request the FQC inspection. S&W Construction Supervisors can initiate "unsats" on the CCC forms for various situations as defined in the CMP including when the completed unit of work has been presented for S&W Construction Supervisor inspection by the Contractor, and the Supervisor finds an unsatisfactory condition.

The S&W CCCP Administrator also maintains or compiles logs of "unsats" as indicated in FQC Inspection Reports (IR's) and

N&D's. On a monthly basis, the CCCP Administrator performs an analysis of the "unsats" from all CCC forms, IR's and N&D's for each type of onsite work in progress. This analysis is further subdivided to report on the performance of each discipline and contractor, management areas and responsible supervisors. The CCCP Administrator convenes and chairs a monthly quality accountability meeting in which the analysis reports are reviewed with the contractors and corrective action requirements for recurring problems, or of isolated instances of sufficient magnitude to warrant special attention, are discussed.

This CCCP system was found to be applied to major contractors such as Walsh, L.K. Comstock and ITI Grinnell (embedments only). It was first implemented in late 1978 and continued through 1979. The analysis of data was discontinued throughout 1980 and for approximately the first half of 1981 during the construction slowdown. Recent CCCP analysis reports and accountability meeting activities were inspected for L.K. Comstock (for primarily September 1981 activities) and September and October, 1981 activities for Walsh. This inspection disclosed areas of weakness with this program as discussed in the following two paragraphs. (410/81-13-03)

Contractors develop proposed preventative actions/commitments which are discussed and finalized as a part of this process. At the time of this inspection, however, there was no formal mechanism or closure loop for items identified, as requiring additional action. The CCCP Administrator had relied on verbal communication together with a lack of recurrence as the method of satisfying that preventative action had taken place. In response to the inspector's concern, however, a mechanism was implemented before the end of this inspection wherein objective evidence of corrective/preventive actions must be furnished the CCCP Administrator before that item is closed. Thus, this part of the weakness has been satisfactorily addressed.

In the CCC analyses examined by the inspector, more than 90% of the "unsats" had been implemented by FQC. Further analysis by the CCCP Administrator supported this approximate ratio (in one case, only 3 of 32 had been implemented by construction). Since construction performs final inspection before calling FQC, these numbers suggest several possibilities, i.e., inspection by construction to less stringent criteria than FQC, construction is not implementing the CMP in the intended manner, FQC "unsats" are subjective in nature wherein construction had judged the same condition to be "sat", etc. Time did not permit the inspector to examine this area in enough detail to determine the source of these apparent discrepancies. Regardless of the cause, the discrepancies/inconsistencies between FQC and construction indicate that the CCCP system used for reviewing/monitoring contractor performance is not working as

well as it should in that very few Construction Supervisor problems with contractors are being used in the evaluation of contractor quality performance. This part of the weakness within the CCCP system had not yet been satisfactorily addressed by the end of this inspection.

In addition to the weakness discussed above, review of the data for the accountability meeting for Walsh covering the period August 31, 1981 to October 4, 1981 further supports the finding in Section 2.2.2.2 that contractor quality training is an example of noncompliance (410/81-13-01). The proposed preventative action for twenty-five "unsats" called for more training with actual numbers as follows: three called for additional training of placement personnel, two applied to concrete curing crews, four applied to carpenter crews, and sixteen applied to ironworker foremen.

4.1.2.3

Management Involvement

4.1.2.3.1

Management Reporting

NMPC and S&W jointly utilize an extensive meeting and reporting system to keep project management apprised of the nature of issues, status and progress, assignment of responsibilities for followup, etc. These include monthly Project Progress Reports, Management Action Reports, Executive Summaries, and Project Meetings with subsequent "Notes of Conference". Monthly Management Review Meetings are held with onsite contractors to discuss performance data, manpower utilization and any problem areas. NMPC personnel assigned to NIP-2 project have a system of weekly progress reports which are used to describe their weekly activities, progress and problems in their assigned areas, status of work, etc. These are combined at each higher level of management resulting in at least monthly progress reports for each organizational entity.

Review by the inspector of samples of reports from each of the above categories indicated active management involvement at all levels in these management meeting/reporting systems. No noncompliances or weaknesses were observed in this part of the inspection.

4.1.2.3.2

Staffing

In addition to the inspector's review of staffing levels discussed in Section 4.1.2.1 staffing levels were discussed with numerous personnel contacted at all levels within the NMPC and S&W project organizations. In no case did any staff member identify any significant problem with any aspect of staffing including approval of requested staffing levels, views of staff adequacy, or maintaining adequate staffing levels.

No noncompliances or weaknesses were identified.

4.1.2.3.3

Problems

As a result of problems encountered at NMP-2 with the Biological Shield Wall, a mechanism was set up for systematic evaluation of current QA problem events and to act as a vehicle for providing improved communications. NED's, E&DCR's, Problem Reports, Inspection Reports, and NRC, NMPC, and S&W audit findings are reviewed to identify potential generic problem areas per procedure PR5 of the Project Manual. In addition, Event Analysis Reports can be initiated by anyone who believes that a subject needs further investigation or action to prevent the development of a serious problem. Any of the above that represent real or potential significant problems are reviewed in monthly Potential Problem Review Meetings (PPRM) attended by key S&W and NMPC QA/QC and project personnel. Assignments of action parties and completion dates are made as required.

Interoffice memos, an agenda, a monthly summary report of findings examined for quality trends or potential problems, and the notes of a PPRM meeting were inspected. Functioning of this group was discussed with S&W QA and NMPC project management personnel.

No noncompliances or weaknesses were identified.

4.1.2.3.4

Management Reviews

Most management reviews of performance of individual departments or sections was found to be accomplished informally (verbally). NMPC does periodically (every six months) and formally review S&W performance in major areas such as quality assurance, engineering and construction with certain incentive awards based on the results of these reviews. Similarly, NMPC and S&W jointly review contractor performance on a periodic basis with any incentive awards (for those with incentive clauses) based on the results of these management reviews. At the time of this inspection, one of the major contracts was in the process of renegotiation with significant additions expected in the area of performance/incentive clauses. The inspector found that significant changes in S&W and contractor management personnel assigned to the NMP-2 project had been made as the result of management performance reviews.

The most significant overall management reviews of the project were made as a part of a NMPC directed 1980 Black & Veatch/Arthur Anderson audit and a New York Public Service Commission directed audit by Theodore Barry & Associates/Conaton, Inc. (TB&A) completed in 1981. Review of the TB&A audit disclosed that the objectives and scope included control of the project (project management), engineering and construction activities. It's charter included to "provide an overall assessment of the

quality assurance/quality control efforts of Stone and Webster and Niagara Mohawk." Review of the T&A recommendations showed that they were primarily in the area of project management and did not directly pertain to QA. Most of them involved recommendations of increased involvement by NMPC in project control and monitoring in the areas of cost and schedule. Much of the increased NMPC project staffing within the past year has been in response to these recommendations.

Review of the mechanisms for assigning action responsibilities, tracking status of commitments and handling overall NMPC responsiveness to the recommendations from both of these audits showed them to be effective in controlling follow-up activities.

No noncompliances or unresolved items were identified.

4.1.2.3.5

Other Information Channels

Neither SMW or NMPC has a formal system for handling allegations, suggestions or worker complaints. In numerous interviews at all levels, however, personnel expressed no reluctance to go to management with any concerns about workmanship or quality. No concerns were expressed about job protection in the event they were to express such concerns. None of the interviewed managers could recall having received any information that they would characterize as a formal allegation.

No noncompliances or weaknesses were identified.

4.1.2.3.6

Management/Employee Interface

Management's availability to employees, interest and dedication to quality and support to employees was explored in contacts with all levels of personnel in NMPC and SMW as well as onsite contractor personnel. All personnel indicated that their managers were readily available most of the time in the various work areas. All contacted personnel indicated a perceived emphasis on quality at all organizational levels with the exception of some perceived lack of support for the NMPC Quality Assurance Department as discussed in Section 2.2.8.2.

No items of noncompliance or weaknesses were identified.

4.2

Documents Reviewed

The following is a list of the primary documents reviewed during the course of this part of the inspection.

4.2.1

NMPC

- Nine Mile Point Unit 2 Project Manual, Volumes I-V
- Weekly and Monthly Progress Reports (at various organizational levels).
- Meeting Minutes for Weekly Area and Task Force Meetings
- Project Status Summary Report ("Executive Summary").
- Organization Charts.
- Various Internal Correspondences
- Status Report (Draft) for NMPC Project Procedures (PPM)/Project Memoranda (PPM).

4.2.2

SEW

- CHP 1.11-8.79, Construction Controls and Completion Program
- CCCP Analysis and Quality Accountability Meeting Reports.
- Monthly Project Reports
- Management Action Reports
- Agenda for Management Review Meetings (and Minutes)
- PPM memos, Agenda, Monthly Summary Report and Meeting Minutes
- Organization Charts
- Interoffice Memos

4.2.3

Other

- Theodore Barry & Associates/Conatom, Inc. Audit of NM2 Project

5.0

Procurement Control

The objective of this part of the inspection was to determine whether the purchase of components and materials for systems important to safety was in conformance with the licensee's approved quality assurance program and implementing procedures.

5.1 Areas Inspected

5.1.1 Procurement Documents

The inspector examined procurement and specification documents for the following materials and components:

- C041-D Resistance Temperature Detectors
- C071-M Electronic Transmitters
- E021-P Electrical Penetration
- E023-C 600 Volt Power Cable
- E024-A 1000 Volt Fire Resistant Cable
- E024-P 300 Volt Instrument Cable
- E024-T Co-Axial Cable
- E026-A Cable Trays
- P281-F Category I & II Radiation Monitoring Equipment

The inspector verified that the documents used in the purchase of components, equipment or types of materials in systems important to safety include proper approval, quality inspection requirements, and quality record requirements.

No items of noncompliance were identified.

5.1.2 Document Control

In reviewing the above documents, the inspector noted a possible problem area in that the individuals receiving the control level 1 documents were making penciled notations in the control document. The inspector specifically cited the C071-M document in the Quality Assurance and Engineering group. The document assigned to each group was extensively marked and the information transferred from the accompanying addendums was in error.

The inspector determined this to be a problem in document control that could result in misinformation.

The licensee took immediate action by issuing a project memorandum requiring all such notations in control documents be notarized and dated by authorized personnel. In addition, the licensee has agreed to review this area and determine adequacy of the control measures. This item is considered resolved.

5.1.3

Conformance with Procurement Documents

The inspector verified that documentary evidence is available onsite to support conformance to procurement documents. The inspector reviewed cable qualification data from two suppliers and found the data to be in conformance with the procurement document.

No items of noncompliance were identified.

5.1.4

Specification Changes

The inspector examined the cable tray specification document E026-A to determine whether changes made in the procurement document as a result of the bid evaluations or precontract negotiations were subjected to review and that such reviews include the determination of any additional or modified design criteria imposed after preparation of the initial procurement document as the result of subsequent analysis of exceptions made or requested by the supplier.

The inspector determined that the qualification tests (Vendor Report No. 24781) does not conform to the specification requirements of E026-A. Examples of differences between the procurement specification and the vendor supplied qualification results were as follows:

- Line 291-294 of specification E026A, states, in part, that: "Except as specifically stated or otherwise inferred, the cable tray shall conform to the requirements of NEMA standard VE-1 for cable trays."
- Section VE1-3.01 of the NEMA document states, in part, that: "The working (allowable) load capacity represents the ability of a cable tray to support the static weight of cables. It is equivalent to the destruction load capacity, as determined by testing in accordance with paragraph VE1-4.01."
- VE1-3.02 specifies three working load categories for cable trays as 50, 75 and 100 lbs. per linear foot.
The cable tray supplier used 35 lbs. per foot as allowed by an engineering change in the specification. Engineering justification, however, for deviating from the NEMA document was not available.
- VE1-4.01, paragraph B, states, in part, that: "test spans shall be simple beam spans with free unrestrained ends...."

VE1-4.01, paragraph D, states, in part, that: "Each end of the specimen shall be supported by a 1 1/8 inch wide by 3/4 inch high steel bar(s) with a 120 degree "Vee" notch cut in its bottom to a depth of 3/16 inch. The "Vee" notch shall rest on a 1 inch solid round steel bar which is welded....."

Sketch No. 85, of the Test Report No. 24781 illustrates a different test mounting configuration used for the static load test of the cable tray specimen. The sketch shows two illustrations of cable tray specimens, one bolted and the other clamped, both in the horizontal position on an "H" type unistrut frame.

- Pg 2-2a of specification E026-A, states in part, that: "...base natural frequency of cable tray shall be determined. Vertical fundamental frequency shall be above 20 cps, verified by calculations using the stiffness data obtained during the performance of vertical loading and horizontal tests specified..."

Since the tray specimen static load data was obtained from tray specimens that were bolted/clamped in position, the stiffness data obtained is much higher than would have been obtained if the test were performed as specified, thus affecting the calculation used in verifying the >20 cps frequency requirements.

- On page C-10, item (3) of the qualification test Report No. 24781, the supplier states, in part, that: "...we will use only unspliced straight sections for frequency tests since splice plate fittings give erroneous results."

Item (f), same page of test Report No. 24781. The supplier indicated that since past experience has shown that fittings were weakest in the vertical direction, they intended only to conduct the seismic tests on the horizontal elbow.

Item (h), same page of test Report No. 24781 the supplier states: "...frequency tests conducted without hold clamps on trays."

- The review document (BK7801270015) of the suppliers technical document shows engineering approval as defined by the specification.

It appears that the supplier was unable to meet the original requirements and is performing tests which do not meet minimum commercial standards as specified in NEMA VE-1. In addition, engineering justification for the less restrictive tests was not available.

The licensee was informed that this is an item of noncompliance and an infraction of 10CFR50 Appendix B, Criterion VII, which states, in part, that: "Measures shall be established to assure that purchased material, equipment and services conform to the procurement documents." (410/81-13-04)

5.1.5

Qualification of Suppliers

The inspector verified that the licensee has established procedures for the selection of qualified suppliers of services, materials and components and that the established procedures are being implemented.

5.1.6

Specification Review

The inspector reviewed specification No. P281F for Category I and II Radiation Monitoring Equipment to determine whether the procurement document contains applicable technical and QA requirements necessary in meeting NRC licensing requirements and SAR commitments. The inspector questioned the adequacy of the Category I Radiation Monitoring Equipment in meeting the sensitivity detection requirements of 10 CFR 20, Appendix B, and Regulatory Guide 1.45. It appears that the Radiation monitors containing two or more channels are of the series type. This implies that the sample flow rate through the systems would be the same. Published data, however, indicates that particulate and gaseous radiation monitors require a high flow rate (8-10 cfm) to meet sensitivity detection requirements and a low flow rate (1-2 cfm) for in-line detection due to absorption characteristics of the charcoal cartridge. In addition, criteria for installation of the Radiation Monitoring Equipment were not defined. Since the Radiation Monitoring Equipment is dependent upon obtaining a representative sample, installation of the sample line should be compatible with the equipment being installed. Discussions with the licensee indicates the P281F specification has been withdrawn and that a new specification is being drafted which addresses the inspectors concerns. The inspector had no further questions at this time.

5.1.7

Detection of Reactor Coolant Leakage

The inspector reviewed section 5.2.3.12 of the PSAR on Primary Containment Leakage Monitor System and section H.3.13 of Appendix H on Containment Atmosphere Monitoring. 10 CFR 50, Appendix A, Criterion 30 requires that means be provided for detecting reactor coolant leakage. Regulatory Guide 1.45 provides the minimum acceptable method for detecting reactor coolant leakage. The guide states that one of two required methods shall be by Radiation Monitor of a sample. No such provisions have been made in the NMP 2 design. The licensee has not taken a position on implementation of Regulatory Guide 1.45 or its equivalent.

This is an unresolved item in that an acceptable method of meeting 10 CFR 50 Appendix A requirements has not been implemented to date. (410/81-13-05)

5.1.8

Cable Tray Spacing

The inspector noted that the licensee's response to NRC question RB.9, listed in section 8 of the PSAR supplement 6 requires some clarification.

Section 6.2.3, paragraph 3 of the response states, in part: "As a minimum, where vertical stacking of trays...at least 12 inches will be maintained between top of tray below and the bottom of tray above...." Section 6.2.3 paragraph 6 of the response states, in part: "...In tray crossovers at least an 18 inch clear space shall be maintained...."

Section 8.1.1 of the response states, in part: "...In general, the minimum vertical spacing for cable trays will be 17 inches, measured between cable tray bottoms for trays with an inside depth of 4 inches and 16 inches for trays with an inside depth of 3 inches."

Electrical Specification E061A specifies a 12 inch clearance space between trays.

The response contains conflicting space separation requirements for vertical stacking of trays.

The licensee response indicates that design control measures have not been implemented for verifying or checking the adequacy and consistency of design criteria. Specified criteria were not included in the erection specification.

This is an additional example of noncompliance with the requirements of 10 CFR 50, Appendix B, Criterion III (410/81-13-02).

6.0

Electrical

The objective of this part of the inspection was to observe work performance, partially complete work and/or completed work as appropriate, associated with the emergency (standby) diesel generator and the motor control centers to determine whether the requirements of applicable specifications, work procedures and inspection procedures are being accomplished in accordance with NRC requirements and licensee commitments.

6.1

Areas Inspected

6.1.1 Equipment Storage In-Place

The inspector examined the control of equipment stored-in-place for post-installation protective requirements, physical protective barriers, protection against condensation and surveillance activity.

No items of noncompliance were identified.

6.1.2 Receiving and Storage Documentation

The inspector reviewed receiving documentation, certificate of compliance, documentary evidence of tests performed and surveillance records of equipment identified above. The inspector found the documents to be legible, easily retrievable and current.

No items of noncompliance were identified.

6.1.3 Storage Facility

The inspector examined the level A and level B storage facility. The records confirm that the equipment is stored in the proper area, the inspection activity is performed as required and the required protection has been provided.

No items of noncompliance were identified.

7.0 Mechanical and IEC

7.1 Previous Open Items

7.1.1.1 (Closed) Unresolved Items (80-04-01) and (80-04-02)

These unresolved items concern clarification of the criteria to be used for the disposition of ultrasonic indications reported in tests conducted on inner wall, cover plate and stiffener welded junctions in the biological shield. The metallurgical studies which were incomplete at the time of issuance of 80-04-01 were reviewed by the HRC inspector and are summarized in S&W Report "Final Report on Biological Shield Wall Nine Mile Point Nuclear Station Unit 2" forwarded to NMPD on 8/1/80 (942-8844). Detailed finite element (FE) analyses and linear elastic fracture mechanics (LEFM) analyses were conducted on each type of suspect welded joint in the biological shield with results indicated in the aforementioned document. The engineering disposition of the ultrasonic indications was based on the calculated FE and LEFM acceptable defect sizes. Engineering evaluation of defect sizes for acceptance purposes is an acceptable practice for AWS D1.1 structures. These items are considered resolved.

7.1.1.2

(Closed) Unresolved Item (81-09-01)

This item concerned the demonstration of the adequacy of a complete composite joint for safety related attachment welds made to the bioshield which includes a weld overlay on the bioshield wall. The licensee has committed S&W to conduct an engineering evaluation weld mockup test assembly as specified in EADCR F10525. S&W and N'PC has committed to answer concerns raised in inspection report 50-410/81-09, paragraph 8(b) concerning inadequacies in the CB&I WPS E70T-1 (8-U3-GF)/13540 by revision to the WPS.

The subject inspection report erroneously reported that the filler metal certification for the E70T-1 utilized 100% Argon where in fact the test was conducted with 100% CO₂. This item is considered resolved based on the licensee's commitments.

7.1.1.3

(Closed) 50.55(e) Item (79-00-01)

This item was previously discussed in inspection reports 79-09, 81-09 and 81-12. Inspection report 81-09 indicated resolution of 7 of the 8 items (weld joint configurations). The instrument penetration-adaptor to sleeve welds could not be resolved due to the lack of availability of UT examination records for the sampling UT tests conducted. Discussions with the licensee and review of documents indicated that no UT records of the examination were available due to the generation of spurious reflector signals caused by the special geometry including a combination of small diameter, thin wall and dissimilar metal welds. The reflectors negated proper evaluation of the data and full compliance with ASME Code UT inspection requirements. Engineering review of the ASME Code requirements indicated that UT was not a code acceptance requirement for the configurations welded. The NRC inspector reviewed calculations and the design requirements for the joints. This data indicated that, in addition to the code required safety factors, the actual weld size resulted in a multiplier factor of 2 or more for all but two joints (3.5" diameter). For the 3.5 inch weld joints, the additional safety factor multiplier is approximately 1.3. These two joints were given a verification PT examination as witnessed by the NRC inspector and reported in S&W PIT00068 which showed no indications. No further response is required. This item is considered to be closed.

7.2

Areas InspectedVisual Observation of Welding

The following welds were visually inspected by the NRC inspector including review of ISO drawings and the welding documentation:

	<u>Drawing</u>	<u>Material</u>	<u>Code</u>	<u>Description</u>
a.	ISO 25-13, FW007	P8-P8	B31.1	CSH 10" x 0.365
b.	ISO 66-7, FW003	P1-P1	III-2	RHS 12" x 0.375
c.	ISO 66-42, FW014	P1-P1	III-2	RHS 6" x 0.280

The preparation for purge, joint fitup and the SMAW portion of weld a were observed. During the SMAW welding, the NRC inspector observed a long meter check of welding amperage. This weld was on the B31.1 side of the B31.1/ASME Class 2 breakline of 25-13-2-CSH-7-4-8.

Welds b and c were visually inspected in the final ground-for-RT condition. Both of these welds were rejected on RT. The repair cycle has not been implemented at the time of the inspection. The weld data sheets for the original welds were reviewed along with the filler metal requisition forms.

The finished ground weld configuration for ISI inspection was a flush geometry rather than a flat top geometry.

No items of noncompliance were identified.

7.2.2 Welding Material Control

The NRC inspector reviewed the S&W filler metal control specifically at the issue station. The procedures for purchasing, receiving, storing and distribution to the issue station were previously reviewed and re-reviewed at this time. The identification, storage and control in accordance with procedures was reviewed. The procedures for controlling moisture in hygroscopic filler metals were reviewed. It was noted that, with the exception of one can of filler metal held for turbine pipe welding, the only carbon on low alloy steel SMAW filler metal in the issue station was E7018.

No items of noncompliance were identified.

7.3

Documents Reviewed

- Interoffice correspondence G. Philippi to C. Eriksson and reply by Eriksson dated December 4, 1981 regarding clarification of "numerous indications" as quoted in C. Eriksson letter to P. M. McQuaid dated September 10, 1981 on UT evaluation examination of penetrations.
- S&W Project Memo (NMP 2) PM70 Rev 1 dated February 17, 1981.
- D. P. Pope Report to S&W, "Horizontal Stiffener to Inner Shell Wall," dated February, 1980.

D. P. Pope Report to S&W, "Horizontal Stiffener to Inner Shell Wall," dated April, 1980.

Dr. C. Mel Adams letters to K. Ward dated March 23, 1980 and April 28, 1980.

S&W Metallurgical Report, NMP2, Unit 2, "Biological Shield Wall Base Ring to Outer Shell Weld," dated January, 1980.

Teledyne Engineering Services (Waltham, Mass.) Technical Report TR-4250-1 dated May 15, 1980, "Cause, Repair and Engineering Assessment of Weld Failures in the Biological Shield Wall for NMP 2."

C. C. Zappile to C. D. Terry letter 9M2-1,453, dated December 10, 1981, "Primary Containment Instrument Penetrations NRC IE Inspection 81-12 NMP Nuclear Station - Unit 2."

8.0 Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Section 5.1.7.

9.0 Exit Interview

The inspectors met with the licensee representatives (denoted in Section 1) at the conclusion of the inspection on December 11, 1981 and December 18, 1981 at the Nine Mile Point Unit 2 construction site and Syracuse corporate offices respectively. The inspectors summarized the scope of the inspection and discussed the inspection findings.