U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 85-27

Docket No. 50-410

License No. CPPR-112 Priority -- Category A/B

Licensee: Niagara Mohawk Power Corporation
300 Erie Boulevard
Syracuse, New York 12302

Facility Name: Nine Mile Point, Unit 2

Inspection At: Scriba, New York

Inspection Conducted: September 9 to October 18, 1985

Inspectors: L.T. Doerflein, Project Engineer
R.A. Gramm, Senior Resident Inspector
J.M. Grant, Reactor Engineer
S.D. Hudson, Senior Resident Inspector
J.P. Rogers, Reactor Engineer

Approved by: J.C. Linville, Chief, Reactor Projects Section 2C, DRP — 11/27/85 Date

Inspection Summary:
Inspection on September 9 to October 18, 1985 (Report No. 50-410/85-27)
Areas Inspected: Routine inspection by the resident and regional inspectors of work activities, procedures and records relative to the Quality Performance Management Program, Containment Local Leak Rate Testing, safety related pipe welding, High Pressure Core Spray system walkdown, SWEC preventive maintenance program, preoperational test procedure review and quality assurance audits. The inspector also reviewed licensee action on previously identified items and performed plant inspection tours. The inspection involved 367 hours by the inspectors.

Results: No violations were identified. However, problems were identified during the inspection as discussed below. As discussed within section 10, the review of an approved preoperational test procedure identified several deficiencies. The review of FSAR information relative to as-built plant conditions continues to identify discrepancies as discussed in sections 10 and 11c. The NRC receipt of preliminary test procedures that fulfill FSAR acceptance criteria remains incomplete as identified in section 10. The integrity of tube-steel weldments to embedment plate seams is an open concern pending licensee hardware reinspections as outlined in section 11b.

DETAILS

1. Project Organizations

Niagara Mohawk Power Corporation (NMPC)

Stone and Webster Engineering Corporation (SWEC)

General Electric Company (GE)

ITT-Grinnell Industrial Piping, Inc. (ITT)

Johnson Controls, Inc. (JCI)

Reactor Controls, Inc. (RCI)

2. Plant Inspection Tours

The inspector observed work activities in-progress, completed work and plant status in several areas during general inspection tours. Work was examined for any obvious defects or noncompliance with regulatory requirements or license conditions. Particular note was taken of the presence of quality control inspectors and quality control evidence such as inspection records, material identification, nonconforming material identification, housekeeping and equipment preservation. The inspector interviewed craft supervision personnel, and quality inspection personnel in the work areas. Observations are noted below:

The inspector reviewed the October 1984 INPO evaluation of the project. The licensee evaluated the INPO identified deficiencies and subsequently reported two items under 10 CFR 50.55(e) to the NRC. The reported deficiencies concerned the diesel generator voltage profile studies and the traceability of spare parts. Several INPO findings were noted to be consistent with NRC identified concerns. The inspector had no further questions.

The inspector reviewed Engineering and Design Coordination Report (E&DCR) C18593 that directed to remove a pipe clamp from support BZ-19BS during hydrostatic testing. The E&DCR was closed approximately one year prior to the system hydrotest. NMPC Quality Assurance found that in fact the clamp was properly removed to allow visual inspection of the obscured field weld. The inspector had no further questions as the premature E&DCR closure did not affect the validity of the hydrotest.

The inspector had a discussion with SWEC Electrical Engineering in regards to the electrical separation test program results. The program applies to power cables of 600 V and below. The test configurations were reviewed. SWEC stated the test results to date support the reduced spatial separation criteria. The inspector had no further questions at this time.

The inspector witnessed a portion of preoperational test 73-2, "24/48 Volt DC Distribution." Licensee Quality Assurance personnel were present. The inspector interviewed the test engineer and reviewed the test procedure signoffs. The use of calibrated Measurement and Test Equipment (M&TE) was noted. The inspector had no questions.

The inspector reviewed the following documents that pertain to the degree of tornado missile protection afforded to the Diesel Generator building roof:

- FSAR section 3.5
- Regulatory Guide 1.117, "Tornado Design Classification"
- Standard Review Plan section 3.5.1.4
- Licensing Document Change Notice 1729
- Engineering Change Notice EGA-031
- Change Package Notification Z A259
- SWEC Calculation MS-1991

The inspector noted the licensee has identified that three diesel generator exhaust penetrations in the diesel generator building roof are not missile protected. The licensee has performed a probabilistic analysis to demonstrate the acceptability of the situation. The licensee stated the FSAR will be amended to reflect the actual site condition. The inspector had no additional questions.

The inspector was informed that several small fires had occurred in the plant. The licensee was asked to provide an evaluation of the impact of the fires upon permanent plant equipment, a formal evaluation was not available. The licensee committed to revise site procedures to establish a formal program for engineering and Quality Assurance to review plant fires and to assess the impact upon permanent plant equipment. This item is open pending licensee implementation of the revised program to evaluate plant fires. (85-27-01)

No violations were identified.

3. Licensee Action on Previously Identified Items

a. (Closed) INFRACTION (80-01-01): Failure to perform required equipment maintenance. The inspector noted that, due to problems with ITT Grinnell implementing the preventive maintenance (PM) program, SWEC assumed responsibility for the PM program in June 1982. Since then improvements such as increased staffing and computerized scheduling have been noted. As discussed in paragraph 9 of this inspection report, the inspector reviewed various records and observed various PM

activities, and determined that the PM program was adequately implemented. The inspector had no further questions concerning this item.

b. (Closed) CONSTRUCTION DEFICIENCY (81-00-01): RPV support skirt access hole cover plate. GE redesigned the covers from thicker steel material to accommodate the annulus pressurization loads. The inspector examined the following documents:

- GE Product Quality Certification for four new cover plates.
- SWEC Receipt Inspection Report X2001385.
- E&DCRs C91042 and C92247 which provided direction to install the covers in accordance with GE instructions.
- GE Field Disposition Instruction (FDI) 30-31263 which provided detailed installation instructions for the new cover plates.
- GE drawings 112D2944, 112D2930, 137C7872, which depicted the new one inch cover plate.
- SWEC Inspection Reports W5A31971 and M5A32085 which documented the satisfactory welding and mechanical installation of the four new covers.

This item is closed.

c. (Closed) UNRESOLVED ITEM (81-05-01): In-place storage program deficient. The inspector noted that the deficiencies with in-place storage identified in inspection report 50-410/81-05 were similar to those identified by the licensee and documented in Nonconformance Report (NCR) No. 309 dated June 29, 1981. The corrective action included items such as the installation of electric unit heaters in secondary containment to reduce humidity, installation of light bulbs for additional heat in boxes covering equipment, and increased housekeeping efforts. Following verification of the corrective action, the NCR was closed in March 1982. The inspector noted that SWEC assumed responsibility for the preventive maintenance (PM) program in June 1982. At that time a baseline inspection was performed to establish a level of confidence that conditions encountered to date had not resulted in degraded equipment. The inspector also noted that since then Specification SM01, "Storage and Maintenance During Storage of Permanent Plant Equipment" has been reviewed several times to assure that equipment will be properly maintained. As discussed in paragraph 9 of this report, the inspector reviewed the implementation of the PM program and found it adequate. The inspector had no further questions concerning this item.

d. (Closed) UNRESOLVED ITEM (82-03-09): Insufficient personnel to implement preventive maintenance (PM) program. The inspector noted that when SWEC assumed responsibility for the PM program in June

1982, additional personnel were acquired and trained to staff the PM department. Current staffing includes a supervisor, three visual inspection personnel and fifteen craft personnel. In addition SWEC has assigned two FQC inspectors to perform the quality control inspections required by specification SM01. As discussed in paragraph 9 of this inspection report, the inspector reviewed the SWEC PM program and determined that it was adequately implemented. The inspector had no further questions concerning this item.

e. (Closed) FOLLOWUP ITEM (82-07-02): Reduction in preventive maintenance (PM) inspections. The inspector reviewed Engineering and Design Coordination Reports (E&DCR's) F00372, F00380, F00425, and F00426 and noted that they mainly involved a frequency reduction or the elimination of various visual PM inspections in Specification SM01. The basis for these changes was a review by SWEC engineers of vendor visual inspection requirements and recommendations. The inspector also noted that NMPC Engineering reviewed these changes and concluded that minimum inspection requirements were being maintained. In January 1983, another review of vendor manuals, supplemental vendor instructions, purchase specifications, and warranty and code requirements was performed by Project Construction, Project Engineering and NMPC Quality Assurance to assure all the minimum requirements were maintained. In addition, the inspector noted that now any reduction of SM01 requirements by SWEC is reviewed by Project Construction, Engineering and Quality Assurance to verify that the change is justified. The inspector had no further questions concerning this item.

f. (Closed) FOLLOWUP ITEM (82-07-03): Adequacy and scope of preventive maintenance (PM) inspections. The inspector reviewed Specification SM01 and Inspection Plan N200SM01FA002 and verified that these documents specify the attributes checked during visual inspections by construction and quality control personnel, respectively. The inspector noted that the scheduling of electrical PM's, such as meggering, has been computerized to ensure timeliness. Based on discussions with PM department personnel and on witnessing the meggering of motor, 2HVR*UC408B the inspector noted that the meggering acceptance criteria and test results are reviewed by PM Engineers for adequacy. As noted in paragraph 3.e above, the inspection requirements of Specification SM01 have been reviewed several times to assure that the inspection/maintenance requirements are adequate to maintain the equipment. The inspector had no further questions concerning this item.

g. (Closed) UNRESOLVED (82-10-03): Material certifications for the reactor head cavity liner. SWEC Nonconformance and Disposition (N&D) report 3573 was issued to identify the deficient material certifications for heat numbers 8654956 and 8052167. The certifications were amended by the material manufacturer to reflect the appropriate heat treatment and corrosion test statements. SWEC N&D 3572 was issued to identify the use of ASTM A-194GR8 nuts in lieu of A-194GR8F. SWEC

engineering determined that the supplied nuts have the same mechanical and corrosion resistence properties as the design and that they were acceptable for use. Engineering and Design Coordination Report (E&DCR) P11,879 was generated to clarify the required information necessary on the liner material certifications. The inspector was informed that SWEC Procurement Quality Assurance (PQA) reviewed all material certifications for the reactor cavity pit, internals pool, cask storage area and spent fuel pool liners. Thirty (30) material certifications were deficient and were either corrected or found acceptable for use by SWEC engineering. This item is closed.

h. (Closed) UNRESOLVED (82-12-04): Control of void design drawings. SWEC Quality Control personnel reviewed the structural steel drawings that were used for inspection purposes. The licensee determined that inspections for twelve (12) drawings had been performed with outdated revisions. SWEC initiated unsatisfactory Inspection Report (IR) X200214 and subsequently ascertained that the validity of the suspect inspections had not been impacted by the use of the outdated drawings. The inspector sampled the drawings in question and found no evidence of deficient inspection. The inspector reviewed the following procedures governing site document control:

-- CSI 11.15, "Document Control Monitoring"
-- CSI 11.13, "Job Site Document Control"
-- QS 6.1, "Document Control"
-- SWEC Document Control training manuals

The licensee has instituted the following enhancements to increase the level of design document control onsite:

-- established a computer based document control system in lieu of a manual system.

-- initiated a document control surveillance program.

-- conducted a site document control training program for document control personnel and general site personnel.

-- issued green drawings for construction and inspection activities.

The inspector was informed that the site document control stations are audited every six weeks to ensure that only up to date drawings are utilized. The inspector interviewed document control and other site personnel in regards to drawing control. The inspector examined document control station handling of transmittals to remove or void site procedures. No discrepancies were identified. This item is closed based upon the licensee investigation of the void drawing control issue and the site document control enhancements.

i. (Closed) FOLLOWUP ITEM (82-14-05): Control of Post Weld Heat Treatment (PWHT) for ANSI B31.1 power piping. The inspector was informed that ITT had not performed PWHT on Category 1 piping prior to January 28, 1983. The inspector reviewed ITT procedure HT-K-311-14, "Heat Treating Specification for ANSI B31.1 Piping at the Nine Mile Point Unit 2 Nuclear Power Station." The procedure was amended to specify the quantity and location requirements for the thermocouples. ITT procedure FQC 7.1-3, "Control of Calibrated Measuring and Test Equipment" requires that thermocouples be marked and calibrated at six month intervals. ITT procedure FQC 4.2-17, "Temporary Attachments" was reviewed by the inspector relative to the criteria governing the thermocouple attachment to the pipe during the PWHT process. This item is closed.

j. (Open) CONSTRUCTION DEFICIENCY (83-00-12): Use of uncertified Quality Control (QC) inspectors. The inspector reviewed the licensee corrective action for the Construction Deficiency Report (CDR) in conjunction with the associated concerns identified in CDR 83-00-10 and Enforcement Action 82-13. The inspector held discussions with the licensee regarding the manner in which the acceptability of the installed hardware was demonstrated although in several cases hardware reinspections were not performed. The licensee was asked to provide additional details regarding:

- The qualifications, educational background, experience, and the site specific training associated with each uncertified inspector at the time the suspect inspections were performed.

- The types of inspections performed by the QC inspectors in question.

- The results of the reinspections performed on the accessible hardware.

Pending NRC review of the requested information in conjunction with additional inspection of the current licensee training and certification program this item remains open.

k. (Closed) CONSTRUCTION DEFICIENCY (83-00-15): Agastat relay bases not torqued. GE Field Deviation Disposition Request (FDDR) KG1-1512 Rev.1 directed that a torque verification of eight (8) inch-pounds be performed for all Agastat relay base mounting hardware. Engineering and Design Coordination Report (E&DCR) C44142 implemented the site re-verification. The inspector reviewed the following inspection and nonconformance documents related to the relay base hardware re-verification:

- SWEC Inspection Reports E4017295, E4017098, E4017101, E4017066, E4017065, E4017075, E4017008, E4018679, E4017260, E3018778 and E4015800.

- SWEC Nonconformance & Disposition Reports 11467, 8273, 6059 and 7499.

- GE Field Deviation Disposition Requests KG1-3400, KG1-4138, KG1-1604, KG1-3267 and KG1-1618.

- NMPC Deficiency Report E01996.

- NMPC Problem Report E00600.

- SWEC Engineering and Design Coordination Reports C45567, C42981 and C43273.

- SWEC Punch List Item Reports P-FRE-3267 and P-FRE-1618.

- NMPC Surveillance Report NMP2-1015-83.

The inspector verified that GE had provided torque verification and stud integrity directions for the reinspection of all Agastat relay bases. The inspector was informed that SWEC QC had reinspected all Agastat relay bases. This item is closed.

l. (Closed) DEVIATION (83-12-06): Field Quality Control (FQC) Inspectors did not document written consent at hold points before allowing work to continue. The licensee identified and revised thirty-eight (38) QC Inspection Plans (IPs) to reflect the mandatory hold points required by the corresponding installation specifications. The inspector reviewed the FQC Inspection Planning log which indicated that the 38 IPs were revised and issued. The inspector reviewed the following IPs to verify that specification requirements for mandatory holdpoints were reflected in the IP:

-- IP N2OE061AFA010, Rev.0F "Electrical Installation - Welding."
-- IP N2OE061AFA025, Rev.0F, "Electrical Installation - Cable Pulling Installation."
-- IP N2OP275DFA001, Rev.B, "Mechanical Equipment Erection - Installation and Alignment."
-- IP N2OP275DFA001, Rev.0G, "Ventilation and Air Conditioning System Ductwork - Installation/Fabrication."

The inspector identified no discrepancies during review of the above IPs and the corresponding specifications. The inspector also verified that FQC procedurally requires that inspection reports be used in the field in order to document hold points at the time of inspection. SWEC Quality Control Instruction (QCI) 14.05 contains this requirement, as well as the individual IPs. The inspector had no further questions. This item is closed.

m. (Closed) UNRESOLVED (83-16-04): Construction release of the Power Generation Control Complex (PGCC). The inspector reviewed SWEC Type C Inspection Report E3S00541 that documented the release of the PGCC.

The inspector reviewed Startup Administrative Procedure N2-SAP-107A "System Release" and Quality Control Instruction 11.01, "Installation Completion and Release." The procedures consistently define the role and responsibility of SWEC QC during the system release process. The inspector reviewed SWEC Inspection Report E4S00190 that documented inadequate equipment installation status of the PGCC components. The licensee ceased all test activities as of February 23, 1984. The Installation Completion Report (ICR) was reissued to facilitate the identification of incomplete PGCC work items. Subsequent to the issue of the revised ICR, testing recommenced on March 9, 1984. Based upon the procedural revisions and enhanced installation status records for the PGCC, this item is closed.

n. (Closed) FOLLOWUP ITEM (83-18-21): Equipment mounting in accordance with seismic qualification. The inspector was informed that SWEC engineering reviewed the Class IE equipment seismic qualification reports and the associated installation instructions. Inconsistencies between the field assembly instructions and the approved qualification report details were assessed. SWEC found that in all cases the installation documentation requirements meet or exceed the seismic qualification requirements and the qualification files were appropriately annotated.

SWEC QC performed a field verification of the Class IE switchgear, motor control centers, and batteries. The inspector reviewed the following documents related to the fastener verification:

- Inspection Reports E4008375, E4008408.
- Nonconformance and Disposition Reports 7334, 8138, 8880, 9162, 9371, 9197, 9196 and 8468.
- Engineering and Design Coordination Report F01756.

The identified hardware discrepancies were reworked or accepted-as-is on the basis of the engineering disposition.

The Structural Design Criteria was revised to incorporate procedural guidance concerning calculations regarding equipment and structural design interfaces.

Project Procedure 94, "Reivew of Changes and Their Effect on the Qualification of Class IE, Mechanical, and Seismic Category I and II Equipment" was revised. Additional measures were implemented to control hardware substitutions such that original equipment qualification tests are not impacted.

The inspector reviewed the following SWEC QA Inspection Plans (QAIP) for attributes related to fastener verification:

- QAIP N20E061AFA040, "Electrical Installation"
  N20E015FP0002, "4.160KV Metal Clad Switchgear (Cat II)"
  N20C061GP0001, "Control Panels"
  N20E015FP001, "4.160KV Metal Clad Switchgear (Cat I)"

Based upon the engineering review of installation instructions, the installed equipment QC verification, the enhanced engineering procedure, and revised QA Inspection Plans, this item is closed.

o. (Closed) FOLLOWUP ITEM (83-18-26): ITT pipe support deficiencies. The generic aspects of these concerns will be addressed during the NRC review of open item 83-18-72. The inspector reviewed the resolution of the specific deficiencies as follows:

Support	Document	Disposition
BZ-66G015	N&D IG-1138	accept-as-is
BZ-71TL	DR 5109	replace clamp with #3 Figure 211 pipe clamp
BZ-66G043	E&DCR C02128	Revised specification to allow non-zero gap at resting point. (See NRC Item 83-18-27)
BZ-71JG	DR 5007 spacer plate detail, weld process planner, requisition on stores	Rework weld defects, shims installed to correct excess pipe to support gaps
BZ-19GK	DR 5003	Rework clevis and pin to 1 1/4" Figure 66.
BZ-72AV	N&D IG-1210	accept-as-is weld length
BZ-72VL	N&D 5866 IR FU033	rework sway strut to proper angular tolerance
BZ 66G032	DR 5000	Rework integral attachment to an acceptable gap
BZ 72MQ	N&D IG 1246	accept-as-is
BZ-19RX	DR 5829	rework support shims
BZ-19QX	IR FU 271	rework support shims

BZ-19RR IR FU 1409 rework support shims

The inspector verified deficiency document closure and appropriate dispositions for the noted problems. This item is closed.

p. (Closed) FOLLOWUP ITEM (83-18-29): Adequacy of support dimensional inspection definition. The inspector determined that the RCI Work Package Program would record the dimensional verification of items installed after March 1985. The inspector was informed that RCI procedure QAI 10-1, "Instruction for Quality Control Inspection" delineates when and how support dimensional verification is to be performed and documented. The inspector was additionally informed by the licensee that all previously installed work on the Recirculation and Control Rod Drive Systems had been reinspected as required by QAI 10-1. The inspector had no further questions and considers this item closed.

q. (Closed) FOLLOWUP ITEM (83-18-30): Snubber pin-to-pin installation dimensions. Engineering and Design Coordination Report (E&DCR) F12878 defined the following responsibilities for the installation and inspection of the Reactor Recirculation System snubbers:

-- RCI was directed to fabricate, erect, and inspect the rear bracket and pipe clamp assemblies.

-- RCI was to fabricate the snubber assembly.

-- SWEC was to position the snubber, install the pins, perform a stroke test and complete the snubber data sheets.

-- SWEC engineering will perform a post installation review of the snubber data sheets.

The inspector verified that RCI will perform the inspection of the pin-to-pin dimension in accordance with the Pacific-Scientific installation drawings. This item is closed.

r. (Closed) FOLLOWUP ITEM (83-18-66): SWEC Inspection Reports (IRs) and ITT Grinnell Deficiency Reports (DRs) open for long periods. The inspector reviewed the actions taken by SWEC and ITT to eliminate the backlog of open Type C Inspection Reports (TCIRs) and DRs, respectively. In conjunction with SWEC's efforts, the inspector reviewed the following:

-- A 2/20/84 letter, issued by SWEC to Site Supervisors, stressing the importance of resolving unsatisfactory TCIRs.
-- A 3/5/84 letter, issued by SWEC to Site Contractors, requesting responses to the open TCIRs.
-- SWEC QCI 10.05, "QA/QC Monitoring Inspection Program," which delineates the requirements for timely resolution and trending of TCIRs.

The inspector determined that initially the SWEC Site QA Supervisor (SQAs) held regular meetings with department and contractor representatives in order to expedite resolution of the backlogged TCIRs. These meetings were discontinued once the backlog was eliminated and TCIR closure time was reduced to two weeks. FQC lead inspectors now maintain status logs of outstanding TCIRs and flag overdue TCIRs to upper management for resolution. The SWEC-QA Contract Monitoring Group is responsible for tracking TCIRs issued to contractors. This is accomplished through an Audit Deficiency Status Report.

The inspector also reviewed a Quality Performance Management Program (QPMP) Report, dated 7/18/85, which illustrates the trends in open Quality Assurance/Quality Control items in relation to the number being generated and the number being closed. This program is a result of efforts by the licensee to keep upper management aware of site activities, especially negative trends.

In conjunction with actions taken by ITT to close DRs, the inspector reviewed procedure FQC 4.10-2, "Work Packages, "which now requires that a hold/check point be included on all planners to require QC verification of work corresponding to resolution of the DR. This procedure also requires that QC transmit verification documentation to the QC Documentation Group for final closure. The inspector discussed these changes with ITT representatives and determined that these changes were being implemented. The inspector also determined that ITT had eliminated most of its backlog of open DRs. As of 9/11/85, 202 DRs were still open, versus 2500 DRs that had been identified by the NRC CAT inspection. Of those that remain open, priority is being given to DRs which are part of a Boundary Identification Package required to support turnover activities.

The inspector had no further questions concerning either SWEC or ITT activities to resolve this issue. This item is closed.

s. (Open) FOLLOWUP ITEM (83-18-89): RCI nonconformance and corrective action programs. The inspector reviewed the following:

-- NMQAI-10-1, Revision 00, "Quality Control Surveillance Inspection."
-- NMQAI-15-1, Revision 01, "Nonconformance Reports."
-- Surveillance Inspection Reports (SIRs) for March, April, May, July, August and September 1985.
-- NMPC QA Surveillance Reports (SRs) M-84-497,-576 and-624.
-- RCI Nonconformance Reports (NCRs) 119 through 124.
-- RCI records for training on NMQAI-10-1 and NMQAI-15-1.

Upon reviewing the above SIRs, the inspector observed that SIRs Aug/85-72, Sept/85-25 and Sept/85-10 noted unsatisfactory conditions. The inspector determined the SIR findings were in the process of being documented on either a Nonconformance Report or Corrective Action Request. Although the inspector had no further questions concerning

those three SIRs, the inspector queried RCI representatives on the use and intent of other SIRs that were completed by an uncertified QC inspector and that were being maintained in the SIR logs. The inspector was unable to determine at the time of this inspection whether RCI was taking credit for that individual's work or whether a certified QC inspector has reperformed the same surveillance. The inspector discussed this concern with NMPC-QA, who issued Surveillance Report M85-00758 to identify and resolve this issue. This item will remain open pending NRC review of SR M85-00758 resolution.

t. (Closed) VIOLATION (83-18-92): Effectiveness of Quality Assurance audit programs and closure of NMPC open audit items. NRC open item 83-18-65 that pertained to NMPC open audit items was closed in NRC inspection Report 85-25. NRC open item 85-25-01 will track the closure of the singular GE related audit open item. The licensee has modified the QA audit procedures to eliminate the use of open items. The closure of the open items on record at the time of the CAT inspection has been pursued in a appropriate manner. The licensee has established an on-site QA audit group. Site contractors were directed to review the audit procedures to ensure that adequate mechanisms were in place to resolve audit identified deficiencies. As discussed within Section 6 of this report, the inspector reviewed recent site audits and found that they appropriately address hardware aspects. This item is closed.

u. (Closed) FOLLOWUP ITEM (83-18-119): Piping installation configurations. The inspector reviewed the following documents that addressed the deficiencies identified in Table III-1 of the NRC CAT inspection report:

Isometric	Document	Disposition
21-48	N&D 10;938	accept-as-is
	N&D IG-1246	accept-as-is
	N&D IG-2277	accept-as-is
21-58	Asme Code Interpretation III-1-77-52, Installed Material Report, Piping Walkdown Checklist, Weld Data Reports	Code data plate not required
21-42	Piping Walkdown checklist	Pipe supports properly identified
21-40	N&D IG-2711	accept-as-is

21-74	DR F424	support reworked

The inspector reviewed E&DCR F02413 and procedure CSI 2.11 "Equipment Clearances." The inspector walked down isometric 21-58 and several clearance violations were identified. SWEC initiated Clearance Evaluation Form 193 to assess the as-built situation. The evaluation found the clearances acceptable. This item is closed.

v. (Closed) FOLLOWUP ITEM (83-18-120): Pipe support deficiencies. The resolution of deficiencies identified on Page III-17 of NRC inspection report 83-18 for supports previously inspected by ITT QC has been addressed in section 3.o of this report. The generic aspects of these concerns will be addressed during NRC review of open item 83-18-72. The inspector reviewed the resolution of the specific deficiencies as follows:

Support	Document	Disposition
BZ-510CD	B31.1 Work Package Engineering Change Notice MCR-106	Rework tube steel to eliminate interference
BZ-11BL	N&D IG-1280	Rework tube steel to eliminate interference
BZ-570JP	N&D IG-2277	Rework insulation thickness to provide adequate clearance
BZ-19ED	DR F424	Rework installation to provide adequate clearance
BZ-19VP	DR 5881	Rework rear bracket location
BZ-570FG	E&DCR V10689	Accept-as-is
BZ-78HS	E&DCR C19547	Installed correct sway strut
BZ-19SP	N&D IG-2036	Install new strut extension piece
BZ-19SW	N&D IG-1580	Rework extension piece
BZ-11BG	IR FU2151	Rework pipe clamp

BZ-71AHK	IR RHS-193	Satisfactorily inspected		
BZ-570T	IR BEM-067	acceptable gaps		
BZ-137DS	CCCP4-2-25-0-	Satisfactorily	LBPS0147	inspected
BZ-137DH	CCCP4-2-25-0-	Satisfactorily	LBPS0205	inspected
BZ-72MV	CCCP4-02-25-0-	Satisfactorily	LBPS0151	inspected
BZ-510ALE	CCCP4-2-25-0-	Satisfactorily	LBPS152	inspected
BZ-570FM	As built drawing	Satisfactorily inspected		
SP-3 Quad II Row 8 top clamp		Satisfactorily inspected		

The inspector was informed that the documents listed above have been satisfactorily closed out. The inspector was informed that the noted Enterprise Quad II SP-8 problem description provided insufficient information to allow licensee corrective action. Based upon the satisfactory licensee resolution of the support concerns identified above, this item is closed.

w. (Closed) CONSTRUCTION DEFICIENCY (84-00-15): Rosemount 510 DU racks may not withstand a seismic event. GE originally issued Field Deviation and Disposition Request (FDDR) KG1-1955 that directed additional mounting hardware be installed to support the rear of the Rosemount racks. The FDDR was subsequently cancelled on the basis that the units had been satisfactorily seismically qualified without the rear support screws. The inspector was informed that during Rosemount seismic tests of the 510 DU rack, the units initially failed. Rosemount replaced the logic select boards with slide switches and an O-ring was installed on the potentiometer shaft. The unit was sucessfully retested. The inspector was informed that the Unit 2 trip units incorporate the seismic modifications. The inspector was informed that the installation drawings do not require bolts to be installed at the rear of the rack. The licensee determined that the seismically tested panel (#13-P693) currently installed at Grand Gulf 1 did not have the rear rack supports. GE and licensee engineering evaluated the consequences of momentary trip light flashing that was observed during the seismic qualification tests performed by GE. The trip units continued to operate after the seismic test and were not damaged during the test. Both GE and the licensee found that the potential momentary trips could cause spurious valve operation but that resultant system lineups will not degrade plant operability. The potential momentary trips will additionally not prevent the initiation of a trip on safety function (ex. ECCS) or a trip off function (ex. Reactor Protection). On the basis of the satisfactory

licensee evaluation of potential consequences of momentary trips, this item is closed.

x. (Closed) FOLLOWUP ITEM (84-01-05): Effectiveness of the ITT Quality Assurance audit program. As identified by the closure of NRC open item 83-18-92 discussed in Section 3.t of this report, the licensee has instituted measures to improve the effectiveness of site audit programs. The inspector examined recent ITT audit reports as discussed in section 6 of this report. Based upon NRC closure of open item 83-18-92 and the satisfactory examination of ITT audit reports, this item is closed.

y. (Closed) VIOLATION (84-01-06): Licensee significant construction deficiency reports. NMPC reported the problem regarding the conduct of inadequate liquid penetrant examination required by 10 CFR 50.55(e). The following actions were implemented by the licensee to improve the site reporting mechanisms:

-- NMPC licensing issued a memorandum dated February 15, 1984 to all NMPC project and quality assurance employees. The memorandum stressed the importance of reporting deficiencies, identified the applicable procedure for reporting significant deficiencies, and established licensing as the focal point handling 10 CFR 50.55(e) items.

-- NMPC directed via letter dated February 29, 1984 that SWEC assess the adequacy of site reporting procedures and make the necessary changes to ensure a timely review of potential 10 CFR 50.55(e) items.

-- SWEC revised procedure CSI 1.14 to clarify the reporting process and to provide for more expeditious review of potential 10 CFR 50.55(e) items.

-- NMPC QA performed a review for potential reportability of 188 Nonconformance Reports issued between January 1980 and April 1984.

-- SWEC issued a memorandum to all SWEC site personnel dated March 12, 1984 that outlined the requirements of reporting 10 CFR 50.55(e) items and provided a copy of the associated procedure CSI 1.14 for reference.

-- SWEC issued CSI 1.14, "Job Site Reporting of Part 50.55(e) Significant Deficiencies and Part 21 Defects and Nonconformances" to all site contractors.

-- As of April 16, 1984 NMPC used Corrective Action Requests (CARs) to document programmatic deficiencies identified by the QA de-

partment. The CAR is automatically reviewed for potential reportability when it is generated.

-- NMPC amended procedure PPNM 151 to provide a site Safety Review Committee to ensure a timely review of reportable items and to conduct a multi-discipline review of the items with personnel from: operations, engineering, quality assurance, construction, and licensing.

The inspector reviewed NMPC QA Surveillance Report (SR) M85-00-22 dated June 10, 1985 which identified concerns with the implementation of the site reporting programs. SWEC issued Corrective Action Request (CAR) AA032 for which the following additional actions were implemented:

-- The size of the SWEC licensing staff dedicated to handling 10 CFR 50.55(e) items was increased.

-- A SWEC QA Supervisor was assigned the responsibility of expediting the review of QA identified problems for reportability.

-- SWEC procedures were amended to provide a consistent timeframe for notifying NMPC of potential 10 CFR 50.55(e) items.

-- The SWEC evaluation process was reduced to seven (7) days.

The CAR has been closed by SWEC on the basis of the above listed corrective actions.

The inspector reviewed the following documents that currently define the site reporting system:

-- PPNM 151, "10 CFR 50.55(e) Significant Deficiencies NMPC Evaluation and Reporting."

-- NMPC Quality Assurance Procedures
QAP 18.10, Quality Assurance Department Audits"
QAP 16.03, "Corrective Action Requests"
QAP 15.01, "Control of Nonconforming Items."

-- SWEC CSI 1.14, "Job Site Reporting of Part 50.55(e) Significant Deficiencies and Part 21 Defects and Nonconformances."

-- JCI QAS 1601, "Control of Nonconformances."

-- RCI NMQAI 16-3, "Instruction for Notification to Customer of Potentially Reportable Deficiencies under 10 CFR 50.55(e) for the Nine Mile Point 2 Jobsite."

-- ITT FQA 10.3-4, "Evaluation of Deficiencies for Potential Reportability under 10 CFR 50.55(e)."

The current site procedures provide the necessary framework to insure that reportable conditions are identified and evaluated in accordance with 10 CFR 50.55(e).

NRC Inspection Report 84-09 identified a concern on the evaluation of the NMPC Audit 4 findings for reportability. NMPC licensing reviewed those items and determined that they were not reportable. The NMPC Quality Assurance Procedures revisions ensure that both Corrective Action Requests and Nonconformance Reports receive timely 10 CFR 50.55(e) reviews.

Based upon the enhancement of both the NMPC and the contractor reportability programs this item is closed.

z. (Closed) VIOLATION (84-05-05): Design control of non-safety related items in Category 1 plant areas. The licensee reported the non-seismically designed control room partitions and emergency diesel generator cranes as 10 CFR 50.55(e) reports 83-00-22 and 84-00-13 respectively. Both components were seismically redesigned. SWEC Project Procedure (PP) 84 "Seismic Evaluation and Documentation of Non-Nuclear Safety Related Components in Nuclear Safety Related Areas," was revised to expand the list of non-safety related components that were asessed under the auspices of PP84. The inspector was informed that SWEC engineering re-assessed all Category 1 plant areas to ensure that non-safety items had either been seismically supported or the potential seismic failure of the item had been evaluated. Particular attention was focused on those items which had been designed before the issuance of PP84. Engineering assured the corresponding evaluations and calculations had been properly documented. The inspector reviewed a SWEC memorandum that described the seismic re-evaluation. SWEC engineering evaluated the circumstances regarding 10 CFR 50.55(e) report 85-00-03 in which a safety related valve operator was located in a non-category 1 plant area. The licensee determined that the valve operator situation was a unique case. Based upon the plant re-evaluations performed by SWEC and the enhancement of procedure PP84, this item is closed.

aa. (Closed) VIOLATION (84-06-04): Indeterminate inspection status of structural steel. The licensee determined that Beam A6110 had not received final QC inspection, but had undergone in-process inspections as documented in IRs S1013496, W1008651, W1008663 and W1008677. The licensee also identified the installation of beams B6427 and D6426 as incomplete, but later corrected that conclusion when it was determined that RCI had installed and inspected both beams in 1982. The inspector reviewed the Weld Data Sheets and Visual Examination Reports for the "WF-8 Base Plate Recirculation Pump Steel" on beams B6427 and D6426 and verified that final inspection was completed with no unacceptable conditions found. The inspector also determined that based on resolution to EA/QA Audit Item 61, the licensee plans to reverify that the inspection status of all structural steel items considered have received final inspection. This verification will

involve a reconciliation between the QC inspection reports and the QC inspection status markup drawings. Any items found not inspected will be identified by the licensee for resolution.

The inspector identified an engineering change that provided instructions not consistent with the project commitment to Regulatory Guide 1.94 regarding thread projection. The licensee found that only the temporary non-safety recirculation pump stands had been erected in accordance with the engineering change. This item is closed.

bb. (Open) UNRESOLVED (84-06-06): Inspection program for Quality Assurance (QA) category II items supported over QA category I equipment. The inspector reviewed SWEC specification P275D for mechanical equipment erection. The specification has not been revised yet to delineate the non-safety related equipment which will receive additional Quality Control inspection. Pending the specification revision and implementation of the requisite inspections, this item remains open.

cc. (Closed) UNRESOLVED (84-11-05): Design control of structural beam stiffener installations. The inspector was informed that an engineering check of the local attachment point stiffness for support BZ-72DS was performed. The check showed that no stiffeners were required as a result of the increased load condition. SWEC engineering reviewed fourty nine (49) previously issued Engineering and Design Coordination Reports (E&DCRs) or Advance Change Notices (ACNs) associated with pipe support redesigns. The inspector was informed that SWEC structural engineering determined those changes and associated structural attachment loading schedules required no additional stiffeners.

The licensee ascertained that the application of engineering judgement by the support designer regarding stiffener installation was correct. The inspector reviewed SWEC procedure PP93, "Category 1 Pipe Stress and Supports Final Reconciliation." The procedure was revised to ensure that Structural Division would evaluate, document and track all structural steel reactions due to pipe supports. The inspector reviewed SWEC memorandums outlining the new design interface control measures that were distributed to project pipe support engineers. This item is closed.

dd. (Closed) FOLLOWUP ITEM (84-18-01): Drawing incorporation of design change documents. The inspector verified that SWEC revised drawing EC-32L clouds the stud spacing change. SWEC issued Nonconformance and Disposition (N&D) report 7120 that clearly accepted the attachment of support BZ-416EG and restricts any further attachments to the embedment plate. SWEC issued an engineering memorandum to reiterate the necessity to highlight affected portions of design drawings. SWEC engineering sampled fifty two (52) design change documents and found that all had been properly incorporated into the applicable

drawings. The inspector reviewed the incorporation of eleven additional design change documents:

Design Change	Drawing
E&DCRs C17283, C17407, C17323, C16031, C17282	EC-37BA-4
E&DCRs C12963, F10715, F10739, F00569, C22904	EC-37CD-3
N&D 4129	Northern Steel E-5966-M3

The documents listed above were properly incorporated. This item is closed.

ee. (Open) FOLLOWUP ITEM (84-18-02): Small bore support attachment tracking. The inspector discussed the load qualification for the embedment plate to which support BZ-416EG was attached. Structural drawings EC-31A-14 and EC-37AH were reviewed. SWEC engineering subsequently found through a field survey that the embedment location was not in accordance with the design. A Nonconformance and Disposition report was initiated by SWEC. Pending licensee review of the structural qualification for support BZ-416EG this item remains open.

ff. (Open) CONSTRUCTION DEFICIENCY (85-00-02): Containment liner zinc primer coat insufficiently cured. The inspector reviewed the Carboline test results for Design Basis Accident conditions. Several variations of coatings were tested. Nonconformance and Disposition Report 12345 stated that field applied CZ-11 primer was qualified and accepted-as-is. Specification S401K, "Protective Coatings Within Primary Containment Structure" defined acceptable Dry Film Thickness (DFT) for the primer as 2 to 6 mils. The Carboline tests of the improperly cured primer only enveloped DFTs of 2 1/2 to 3 1/2 mils.

The licensee was asked to respond to the following items:

-- reconcile N&D 12345 disposition with the Carboline DBA qualification test results.

-- provide SWEC calculation 12177-ES-135-1.

-- provide Inspection Report S5A60087.

-- Correct FSAR section 6.1.2.2 and Table 6.1-3 to reflect the actual quantity of unqualified and qualified coating material.

This item remains open.

gg. (Closed) CONSTRUCTION DEFICIENCY (85-00-13): Diesel generator timing chain tightener locknuts. The licensee obtained replacement locknuts for diesels EG1 and EG3. The inspector reviewed the following documents that pertain to the locknut installations:

Diesel EG1
- Deficiency Report M01243
- NMPC QC Inspection Report 2-85-0623
- Work Request 3870
- Material Stores Requisitions A488556 and A406776
- Torque Wrench Calibration Data

Diesel EG3
- Deficiency Reports M01244 and M01245
- NMPC QC Inspection Report 2-85-0735
- Work Request 8318
- Material Stores Requisition A488579
- Torque Wrench Calibration Data

The locknut replacement has been completed and inspected by NMPC Quality Control. This item is closed.

hh. (Closed) UNRESOLVED (85-06-01): System release walkdown procedures. The licensee revised procedure CSI 2.13, "Release and Turnover of Systems and Subsystems" to provide more definition regarding the joint system walkdown. The joint walkdown team is composed of Startup and Test, Field Quality Control, SWEC Construction, NMPC Quality Assurance and appropriate contractor personnel. The inspector reviewed the following procedures that provide additional instructions for the turnover conduct:

-- NMPC QCI 6.20-02, "Startup QA Review of Type A or B System/Equipment Release Packages and System Turnover Package Review."

-- NMPC SAP-107A "System Release."

-- NMPC SAP-107B, "System Turnover."

-- SWEC QCI-11.01, "Installation Completion and Release."

This item is closed.

ii. (Closed) VIOLATION (85-10-01): Quality Control (QC) acceptance of improperly installed Hilti bolts. The licensee initiated unsatisfactory Inspection Report (IR) S5A53110 to document the lack of beveled washers, the lack of proper embedment depth and the lack of contact with the washer material. The Hilti bolts were reworked with beveled washers and additional standard washers were installed so the nut

would be in contact with the washers. Nonconformance and Disposition (N&D) report 12034 accepted the lack of proper embedment for five of the adjacent Hilti bolts. The inspector reviewed SWEC IR E5AS04062 that directed that all structural steel platform Hilti bolts be reinspected. Unsatisfactory IRs S5A54132 and S5A54052 were issued during the reinspection for Hilti bolts that had inadequate embedment depth. N&Ds 12428 and 12441 accepted as is the lack of proper embedment depth of the Hilti bolts. The licensee determined the root cause of the identified deficiencies was a singular QC inspector that had accepted the deficient installations. SWEC issued Corrective Action Request (CAR) AA033 to document a concern regarding the work of the QC inspector in question. SWEC obtained a computer listing of all inspections previously performed by the QC inspector. The inspections were sorted by the following inspection areas:

-- High strength bolting

-- Structural steel erection

-- Hilti bolt installation

-- Electrical support and welding inspection

-- Stud welding

-- Structural steel welding

SWEC developed a special sampling plan to reinspect at least 10% of the items in each area. The inspector reviewed the following IRs that documented the reinspection results:

-- S5A62301, S5A62302, S5A62303, S5A62304, S5A62305, S5A62306, S5A62308, S5A62309, S5A62310, S5A62311, S5A62312, S5A62313, S5A62314, S5A62315, S5A62253, S5A62254, S5A62255, S5A62256, S5A62257, S5A62259, S5A62260, S5A62261, S5A62262, S5A62263, S5A62264, S5A62265, S5A62266, S5A62267, E5A52473, E5A52447, E5A52728, E5A46950, E4048975, E5A55822, E5A55821, E5A55820, E5A55819, E5A55818, E5A55817, E5A55816, E5A52446, E5A52727, E5A47215, E5A47106, E4047634, E5A52727, E5A53690, E4046419, S5A56274, E5A46963.

The inspector noted the closure of all unsatisfactory inspection reports. SWEC found that the inspection results pass the sampling plan. NMPC issued Surveillance report SR-85-10120 to document the reverification of two inspections performed by the suspect QC inspector. Based upon the reinspections performed to verify the quality of the inspections performed by the individual in question and the rework of the unacceptable conditions, this item is closed.

jj. (Open) UNRESOLVED ITEM (85-10-04): Licensee technical review of preoperational test procedures. As discussed in section 10 of this

report, NRC review of approved test procedures continues to identify technical inadequacies. This item remains open.

kk. (Open) FOLLOWUP ITEM (85-13-01): Review of SWEC Engineering Assurance/Quality Assurance (QA) audit reports. The inspector reviewed site QA audit report 39 for the Reactor Core Isolation Cooling system. The report documents the multi-discipline audit of installed plant hardware. The inspector addressed the following questions to SWEC QA:

-- Several action items (QC-02, QE-05, QS-05 and QP-02) that appeared to result in site corrective actions were not discussed within the audit report.

-- The audit report did not discriminate between QA Category I and II items that were examined.

-- The audit report did not differentiate between items that had not received QC inspection prior to the audit examinations.

-- The audit report concluded that site hardware was found in accordance with the engineering design. In three cases however, the original design was inadequate for the instrument line expansion loops over 350 degrees F, for the lineup of equipment drain lines, and for adequate weld length deposit on a raceway support. The generic concern of design adequacy was not addressed within the report.

The inspector held a meeting with SWEC Boston and site QA personnel. The action items in question were discussed and the inspector verified that they were in fact properly handled within the audit. The inspector was informed that unless otherwise noted, all items examined by the audit team were Category 1 and previously QC inspected. The inspector was informed that five action items had been transferred to the EA group for action. The EA phase II report section 3.1.b did not adequately address the five action items. SWEC personnel committed to revise the evaluation in a forthcoming report.

This item remains open.

ll. (Closed) FOLLOWUP ITEM (85-13-02): Diesel generator exhaust support pedestal cracks, SWEC issued N&D 12286 to document the cracks in the concrete pedestal. The disposition directed removal of the damaged concrete, the installation of additional #6 dowels and use of Masterflow grout to reform the pedestal. The licensee has closed the N&D based upon satisfactory repair. The inspector examined the pedestal and noted no additional cracks. This item is closed.

mm. (Closed) FOLLOWUP ITEM (85-99-03): Monitor repair welding effects on piping base material. As discussed within section 7c and 7e of this

report, the repair welding procedures for ITT and RCI were reviewed. This item is closed.

nn. (Closed) FOLLOWUP ITEM (85-99-06): Implementation of Preventive Maintenance program. Based upon the inspection of the SWEC Preventive Maintenance program described in section 9 of this report, this item is closed.

oo. (Closed) FOLLOWUP ITEM (85-99-15): Schedule NRC Nondestructive Examination (NDE) van inspection. The licensee has been notified that the NDE van will be onsite from December 9 to December 20, 1986. This item is closed.

pp. (Closed) FOLLOWUP ITEM (85-99-17): NRC review of the SWEC Engineering Assurance audit. The resident inspector, Region I management staff and the Inspection and Enforcement staff monitored the SWEC Engineering / Quality Assurance joint audit. The NRC review has been documented in the following inspection reports:

- Docket 50-410/85-09, 85-13, 85-14, 85-18, and 85-28.

This item is closed.

qq. (Open) FOLLOWUP ITEM (85-99-18): Accuracy of FSAR plant description. The inspector reviewed the High Pressure Core Spray System (HPCS) depicted in FSAR figure 6.3-6. SWEC diagrams FSK-27 A/B/C were examined. Several inconsistencies were noted between the flow diagrams and the FSAR figure. Section 10 of this report discusses several inconsistencies between FSAR section 9.1.4 and pre-operational test procedure N2-POT-39. This item remains open.

4. Licensee Action on IE Bulletins and Circulars

The inspector reviewed licensee records related to the IE Bulletins and Circulars identified below to verify that: the IE Bulletins and Circulars were received and reviewed for applicability; a written response was provided if required; and the corrective action taken was adequate. Based on this review, the inspector closed the following IE Bulletins and Circulars for the reasons indicated.

-- IE BULLETIN 73-02, Malfunction of Containment Purge Supply Valve Switch

The inspector reviewed FSAR Section 6.2, "Containment Systems," figure 9.4-8K, and drawing ESK 7CPS01, Revision 8. The inspector verified that, as noted in the licensee's review, the Containment Purge System isolation valves are electrically separated and not subject to the common mode failure described in the IE Bulletin.

-- IE BULLETIN 74-03, Failure of structural or seismic support bolts on Class 1 components.

The inspector reviewed Quality Assurance Inspection Plan (QAIP) N20P275DFA001, "Mechanical Equipment Erection." A QC holdpoint is provided to assure that equipment anchor bolts are tightened with a calibrated torque wrench in accordance with the engineering instruction or manufacturer recommendation. ASME code joints are controlled in the SWEC program through the issuance of Bolted Joint Data Sheets. The SWEC inspection program will preclude the overtensioning of hold down bolts identified by the IE Bulletin. This item is closed.

-- IE BULLETIN 74-06, Defective Westinghouse Type W-2 Control Switch Component.

The inspector noted that the licensee previously determined that the Westinghouse Type W-2 control switch was not used at the facility. The inspector verified that the licensee added this switch to the Excluded Equipment List to ensure that Westinghouse Type W-2 control switches or replacement parts are not purchased. This item is closed.

-- IE BULLETIN 74-13, Improper Factory Wiring in General Electric Motor Control Centers at Fort Calhoun.

The inspector noted that the only General Electric Motor Control Center on site has Tefzel cable rather than the subject Vulkene cable (SI-58053) and that SWEC has not purchased any of this type Vulkene cable. The inspector also noted that although the design standards allow vendors to supply interpanel wiring, they are restricted to use Vulkene Supreme cable (SI-57279) which is different from the problem cable. This item is closed.

-- IE BULLETIN 75-05, Operability of Category I hydraulic shock and sway suppressors.

The licensee responded by letter dated June 11, 1975 to the IE Bulletin questions on hydraulic snubber design and testing. SWEC and GE have since designed the piping systems to utilize only mechanical snubbers. The inspector has verified through field observation that no hydraulic snubbers are used. This item is closed.

-- IE BULLETIN 76-06, Diaphragm Failure in Air Operated Auxiliary Actuators for Safety Relief Valves.

The inspector noted that, although the licensee does not use a diaphrapm type actuator on the safety relief valves, a review of installation specification P306V and the safety relief valve vendor (Dikkers) instruction manual was performed to ensure that the valves would be installed per the vendor's requirements. This item is closed.

-- IE BULLETIN 80-04, Analysis of a PWR main steam line break with continued feedwater addition.

The inspector was informed that SWEC calculation 12177-ES-121 superseded the information contained in SWEC letter #9M2-8544. The licensee stated that the FSAR information in section 6.2 is consistent with the SWEC calculation. The calculated LOCA pressure with continued feedwater addition is accommodated by the primary containment design. This item is closed.

-- IE BULLETIN 80-06, Engineered Safety Feature (ESF) Reset Controls.

The inspector reviewed the Failure Modes and Effects Analysis (FMEA). SWEC performed a review of each safety related system to verify that following a reset of the actuation signal, the equipment remains in its safety mode of operation until deliberate operator action is taken to reset it. The inspector reviewed the attributes examined during this review as well as a report of the results. The analysis determined that the Containment Atmosphere Monitoring system sensing line isolation valves would reopen and the sampling pumps would restart upon reset of the LOCA signal. Based on a review of several system drawings and on discussions with licensee personnel, the inspector determined that the Containment Atmosphere Monitoring System construction drawings were revised to correct the problem. This item is closed.

-- IE CIRCULAR 80-03, Protection from Toxic Gas Hazards.

The inspector noted that, as documented in FSAR Section 2.2.3, the licensee has evaluated both onsite and offsite potential toxic gas hazards. The results of this analysis have been reviewed and the Safety Evaluation Report (NUREG-1047) issued February 1985 concluded that the site would be adequately protected. This item is closed.

-- IE CIRCULAR 81-08, Foundation Materials.

The inspector noted that all major Category I structures are founded on rock which precludes a settlement problem. For other Category I structures not founded on rock, such as pipelines and tanks, the foundation media was compacted structural backfill controlled by Specification G002P. The inspector also noted that Quality Assurance Audit No. 24, performed October 5-7, 1981, reviewed the backfill placement program and found compliance in the areas identified in the IE Circular. This item is closed.

The inspector closed the following IE Bulletins and Circulars because the subject component or system is not installed at the facility.

-- IE BULLETIN 71-01, Failure of Valve Operator on a Main Steam Isolation Valve.

-- IE BULLETIN 72-02, Simultaneous Actuation of a Safety Injection Signal on Both Units of a Dual Unit Facility.

-- IE BULLETIN 74-16, Improper Machining of Pistons in Colt Industries (Fairbanks-Morse) Diesel Generators.

-- IE BULLETIN 76-01, BWR Isolation Condenser Tube Failure.

-- IE BULLETIN 77-03, On-Line Testing Of The Westinghouse Solid State Protection System (SSPS).

-- IE BULLETIN 77-04, Calculational Error Affecting the Design Performance of a system for controlling pH of Containment Sump Water following a LOCA.

-- IE BULLETIN's 79-05, 79-05A, 79-05B, and 79-05C, Nuclear Incident at Three Mile Island.

-- IE BULLETIN's 79-06, 79-06A, 79-06A Revision 1, 79-06B and 79-06C, Review of Operational Errors and System Misalignments identified during the Three Mile Island Incident.

-- IE BULLETIN 80-18, Maintenance of Adequate Minimum Flow thru Centrifugal Charging Pumps following Secondary Side High Energy Line Rupture.

-- IE CIRCULAR 80-13, Grid Strap damage in Westinghouse Fuel Assemblies.

-- IE CIRCULAR 80-17, Fuel Pin damage due to Water Jet from Baffle Plate Corner.

The inspector reviewed the following IE Bulletin that will remain open pending additional licensee actions:

-- IE BULLETIN 83-06: Nonconforming materials supplied by Tube-Line Corporation.

The licensee reported the existence of the Tube-Line material under 10 CFR 50.55(e) as item 83-00-09. During a licensee investigation in response to NRC questions regarding material certifications, twenty six (26) additional Tube-Line fittings were identified onsite. Nonconformance and Disposition report 13,188 was issued. The licensee described additional corrective actions in a letter dated October 28, 1985 to Region I. This item remains open.

5. Quality Performance Management Program

The inspector reviewed the twentieth and twenty-first Quality Performance Management Program (QPMP) reports. The inspector and the Region I Section Chief attended the twentieth QPMP licensee executive board meeting. As the level of bulk construction activity is declining, the licensee has

amended the QPMP report format to consolidate the data presentation. No violations were identified.

6. Quality Assurance Audits

The following documents were reviewed by the inspector that pertain to the requirements for site audit programs:

- PSAR section Appendix D.2.18, "Audits"
- ANSI N45.2.12, "Requirement for Auditing of Quality Assurance Programs for Nuclear Power Plants"

The inspector reviewed the following site audits relative to the guiding commitments and for adequate coverage of hardware activities:

Audit Performed By	Audit Number	Hardware Audited
NMPC	01-ITT-84	Receipt, storage and installation, of pipe spools and MSIVs
NMPC	02-SWEC-84	Switchgear 2BYS*SWG28 and instrument 2ICS*T1
NMPC	03-COMS-84	Motor control center 2EHS*MCC302B
NMPC	05-RCI-84	ISI
NMPC	RG-VR-N2-84008	Small bore isometric 2IAS-735
NMPC	RG-VR-N2-84011	Installation of valves, pipe hangers, strainer and pipe spools
NMPC	RG-VR-N2-85001	Equipment storage
NMPC	RG-VR-N2-85002	Unit coolers
NMPC	RG-VR-N2-85003	Recirculation pumps/motors, reactor vessel internals
NMPC/SWEC	Audit 39	RCIC system
NMPC	NC-RG-IN-85018	Diesel generator fire protection
NMPC	NC-RG-CO-85021	Instrument tubing/rack / support
NMPC	NC-RG-CO-85023	Scram header welds

NMPC	NC-RG-CO-85024	Electrical penetration and motor operated valve
NMPC	NC-RG-IN-85026	Raceway, terminations, penetrations, pump, valve
NMPC	NC-RG-CO-85033	NDE examinations
NMPC	NC-RG-CO-85034	Section XI rework
NMPC	NC-RG-CO-85035	Fire seals
SWEC	Supplemental Audit 1	Battery charger, raceways, cable pulling, load center, switchgear, transformer
SWEC	Supplemental Audit 2	Test Program
SWEC	Supplemental Audit 3	HVAC leak test, duct supports, fans, unit cooler
SWEC	Supplemental Audit 6	batteries, pumps, day tank, motor generator, distribution panel
SWEC	Supplemental Audit 8	protective coatings
SWEC	38	welding material control, NDE, HVAC
ITT	1/14-1/18/85	radiographic film, pipe supports
ITT	4/22-4/25/85	pipe supports, inprocess installations
ITT	7/26-8/8/85	radiographic film

The inspector had discussions with NMPC audit personnel regarding the conduct of the audits. Audit plans were reviewed for the NMPC audits. The inspector found that audits devote considerable attention to the adequacy of hardware while still auditing software aspects.

No violations were identified.

7. Safety Related Pipe Welding

a. The inspector reviewed the following documents for provisions regarding proper control of welding material:

- AWS D1.1 Structural Welding Code.
- Regulatory Guide 1.38, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water Cooled Nuclear Power Plants.
- ANSI N45.2.2, "Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants."
- ASME Boiler and Pressure Vessel Code NB-4400.

The inspector then reviewed site specification 7201, "Field Storage, Handling, and Issuance of Welding and Brazing Materials" to ensure the requirements of the above listed documents were adequately reflected within the specification. The inspector toured the ITT welding material issue station. The following items were verified:

- segregation of welding material by heat/lot
- proper storage oven temperature
- adequate cleanliness conditions
- controlled access
- portable ovens energized
- calibrated storage oven thermometers

The inspector interviewed the rod room personnel and found them knowledgeable in the guiding requirements. The inspector had no questions.

b. The inspector reviewed the requirements of ASME Section III NB-4600 that pertain to Post Weld Heat Treatment (PWHT). ITT procedure HT-K-111-13, "Heat Treating - ASME Section III Piping" was reviewed. The inspector found the procedure consistent with the code requirements. The inspector reviewed the following PWHT records:

- Isometric 47-16 FWB
  diameter=24 inches wall thickness=2.039 inches
  four calibrated thermocouples
  heating/cooling rates of 190 degrees F/hour
  were verified
  hold time of 2 hours was verified from strip chart
  Post PWHT magnetic particle exam performed
- Isometric 47-16 FW 9 Repair 2
  diameter=24 inches wall thickness=2.344 inches

four calibrated thermocouples
heating and cooling rates verified
hold time of 2 hours verified from strip chart
Post PWHT magnetic particle exam performed

The inspector had no questions.

c. The inspector reviewed ITT procedure NM-1068-3, "Weld Repair Procedure." The procedure limits the number of repair weld attempts dependent upon the material composition. Surface contour, intermediate Nondestructive Examination (NDE) and final NDE requirements are specified. The inspector reviewed weld data sheets, nonconformance documents, NDE records, and work control documents from ASME Isometric 66-38 Package Revision H for the following repair welds:

- Field Weld 1,4,5,6,7, and 8

The weld repair documentation was found in accordance with the procedural requirements. The inspector had no questions.

d. The inspector reviewed ASME Boiler and Pressure Vessel Code Section IX Article II regarding welding procedure qualifications. The following ITT weld procedures and qualification records were reviewed:

Weld Procedure Specification (WPS)	Procedure Qualification Record (PQR)
81A8-04-2-11	21700
81A8-04-2-12	21700
569/1-01-1	21230

The inspector found that the qualification records document the essential variables and test results to qualify the WPS. The inspector had no questions.

e. The inspector reviewed the following GE documents for requirements regarding the reactor recirculation pipe welding:

- MPL A62-3650/22A6792, 22A6793, 22A6794, "Installation Instructions for GE Piping Systems Volume 1,2 and 3"

The GE instructions identified specific requirements for intermediate and final NDE, preheat temperature, interpass temperatures, use of spacer blocks, and root examination. The inspector reviewed the following RCI records for the noted recirculation pipe welds:

- Weld 10B: weld data sheet, base metal PT/VT exam, root PT/VT exam, intermediate PT/VT exam, spacer block removal PT/VT, preheat verification, RT record 82-144, spacer block temporary attachment sheet, weld repair map, repair 1 data sheet, repair 1 cavity PT exam, nonconformance reports 238/269/and 58, RT report

178, repair 2 weld data sheet, repair 3 weld data sheet, RT report 260, repair 4 weld data sheet, RT report 277, RT report 281, RT report NM85-08

- Weld 10A: weld data sheet, preheat verification, spacer block temporary attachment data sheet, RT report 133, repair 1 weld data sheet, RT report 206, RT report 232, RT report NM85-01, RT report 85-31

The inspector discussed the four weld repairs performed on weld 10B with cognizant GE personnel. The inspector was informed that GE San Jose had evaluated the weld repairs and found the final weld acceptable.

The inspector was informed by RCI personnel that no Post Weld Heat Treatments were performed on the recirculation piping. The inspector had no questions.

No violations were identified.

8. Containment Local Leak Rate Testing

On October 2, 1985, the inspectors witnessed the Local Leak Rate Test (LLRT) on the High Pressure Core Spray test line isolation valve (2CSH*MOV111). The inspectors verified that: the LLRT was performed in accordance with approved procedure MP.GENE.005, "Containment Penetration Leak Rate (Type C) Test," Revision 0; the valve lineup was adequate and correct; and the test equipment was properly calibrated. The inspectors noted that the LLRT results for valve 2CSH*MOV111 met the acceptance criteria specified in the test procedure. No violations were identified.

9. SWEC Preventive Maintenance Program

The inspector reviewed implementation of the SWEC preventive maintenance program to verify compliance with the requirements of specification SM01, "Storage and Maintenance During Storage of Permanent Plant Equipment, "Revision 14, and procedure CSI 20.10, "Preventive Maintenance, "Revision 5. The inspector selected the Preventive Maintenance Work Orders (PMWO) for Containment Purge System fan 2CPS*FN1, valve 2ICS*MOV150, and the Reactor Core Isolation Cooling system pump, steam turbine and gland seal compression to verify that the PMWO's specified the preventive maintenance (PM) requirements of SM01. The inspector also reviewed the associated Summary of Preventive Maintenance Done (SPMD) cards to verify that, up to system turnover to the startup group, the PM's were performed at the required frequency. The inspector noted that SWEC has computerized the PM schedule. A computer printout is issued each week which identifies the visual, electrical and mechanical PM's due. These printouts are coded to specify the type of PM and are used to track completion status. The inspector reviewed several completed printouts and did not identify any discrepancies.

The inspector also observed the performance of: electrical (meggering) and mechanical (shaft rotation) PM's on unit cooler 2HVR*UC408B; visual PM's on valve 2GTS*MOV4A and electrical penetration Z-38; and a general area visual inspection. During the electrical maintenance, the inspector noted that the data sheet identified the acceptance criteria which was verified by engineering and that the test equipment was in calibration. No discrepancies were noted during any of the PM activities observed.

The inspector noted that SWEC has dedicated two FQC inspectors to perform the quality control inspections required by SM01. The inspector reviewed inspection plans N200SM01FA001 and N200SM01FA002 on the maintenance of storage areas and permanent plant equipment, and interviewed the FQC inspectors to verify that the inspections were performed at the required frequency. The inspector also reviewed SWEC QA audit No. 38, performed during March 1985, and noted that the QA department periodically audits the SWEC storage and PM programs.

Based on the observation of various PM activities, discussions with SWEC PM and FQC personnel, and on a review of various records, the inspector determined that implementation of the SWEC PM program was adequate.

No violations were identified.

10. Preoperational Test Procedure Review

The following preoperational test procedures were reviewed in preparation for test witnessing, for technical and administrative adequacy, and for verification that the testing planned would adequately satisfy regulatory guidance and licensee commitments. The procedures were reviewed to verify proper licensee review and approval, correct format, test objectives, prerequisites, initial conditions, test data recording requirements, technical adequacy and system return to normal.

-- N2-POT-35, Reactor Core Isolation Cooling System, Revision 0, Approved May 3, 1985.

-- N2-POT-38, Spent Fuel Pool Cooling and Cleanup System, Revision 0, Approved August 6, 1985.

-- N2-POT-39, Fuel Handling and Reactor Service Equipment, Revision 0, Approved August 26, 1985.

-- N2-POT-84, Reactor Building Polar Crane, Revision 0, Approved February 12, 1985.

Based on the review of preoperational test procedure N2-POT-39 and on discussions with licensee personnel, the inspection determined that the fuel handling grapple did not have the interlock described in FSAR Section 9.1.4.3 which prevents grapple disengagement until there is a slack cable signal indicating that the fuel assembly is seated. The inspector also

noted discrepancies between the test procedure and FSAR section 9.1.4.3 concerning the height of water above the grapple hook or cable fitting with the respective fuel grapple or auxiliary hoist fully raised. The FSAR specifies that with the fuel grapple or auxiliary hoists fully raised, their loads will be no higher than 8 feet 6 inches under water. The test procedure allows the grapple hook to be 8 feet 2 inches and the cable fittings 8 feet below the platform rails with the respective fuel grapple or auxiliary hoist fully raised. The inspector noted that the platform rails are approximately 6 inches above the surface of the spent fuel pool water. Thus the procedure allows the loads to be as little as 7 feet 6 inches below the water. This is one foot less than the FSAR commitment.

Based on the inspector's findings, the licensee reviewed FSAR section 9.1.4 and identified additional discrepancies between the FSAR and the installed equipment involving the classification of the refueling platform and the lack of interlocks to prevent accidentally running the fuel grapple into the spent fuel pool walls. The licensee stated that an FSAR clarification/change request would be submitted to resolve all discrepancies. The inspector will review the results of the licensee's action during a subsequent inspection under previously identified open items 50-410/85-10-04 and 85-99-18.

The inspector examined GE preoperational test specification 22A2271BA Rev.3. section B.12.5. The inspector verified that the GE specification test acceptance criteria would be fulfilled by preoperational procedure POT-32 , "Low Pressure Core Spray" with the exception of differential pressures while opening two motor operated valves. The inspector was presented GE Field Deviation and Disposition Request KG1-0328 which amended the GE specification such that it was consistent with POT-32. The inspector had no further questions.

Based upon the review of preoperational test procedure N2-POT-35, "Reactor Core Isolation Cooling System" the inspector identified the following concerns to the licensee:

- Procedure step 4.3.6.1 requires that the low steam supply pressure isolation signal leads be lifted from each of the trip units. Procedure step 4.3.6.4.0 and 4.3.8.3.0 for the check of the low steam supply pressure isolation function could not be accomplished as the lifted leads would preclude testing of this function. The licensee stated the procedure would be revised to properly test this isolation signal.

- Procedure section 8.0 for system restoration did not address the trip units. The licensee stated the procedure would be revised to ensure trip unit restoration at the test conclusion.

- Procedure section 7.9 acceptance criteria for differential pressures while opening of motor operated valves MOV*120, MOV*164 and MOV*148

was inconsistent with the GE test specification. The licensee stated that the test procedure and test specification would be reconciled.

- Procedure step 4.3.18.14 stated that MOV*126 should be tested to verify the ability to open against 1140 psid whereas 1350 psid is required. The licensee agreed to correct the test procedure.

- Procedure section 7.0 for acceptance criteria did not include a vibration limit of 3 mils for the turbine. The licensee agreed to amend the procedure.

- Preliminary test procedure IS.35.001, "ICS Pump and Turbine" improperly identified peak turbine speed as 4500-4600 rpm, while the correct upper limit should be 4550 rpm. The licensee agreed to correct the test procedure.

The RCIC preoperational test procedure had been reviewed and approved by the NMPC Joint Test Group. These NRC identified procedural deficiencies constitute another example of incomplete procedure review as identified by NRC open item 85-10-04.

The inspector reviewed several Category 1 preoperational test procedures. In several cases, it was noted that preliminary test results would be used to satisfy FSAR pre-operational acceptance criteria. In accordance with Regulatory Guide 1.68, the inspector requested that the licensee identify those cases in which the preliminary tests fulfill the acceptance criteria and provide the requisite preliminary test procedures for NRC review prior to test conduct. Pending NRC receipt of all such preliminary test procedures, this item is open. (85-27-02) The inspector reviewed FSAR chapter 14 that includes provisions for utilizing the preliminary test results in that fashion.

No violations were identified.

11. <u>High Pressure Core Spray System Walkdown</u>

a. The inspector accompanied SWEC QC personnel during the as-built walkdown of the High Pressure Core Spray (HPCS) piping isometric 25-10. The inspector reviewed the associated SWEC drawings 2CSH-025-010/CD-AB and DP-3784-6. The QC personnel verified that the critical dimensions and geometry of the piping run were consistent with the design drawings. The inspector reviewed SWEC Inspection Reports P5A72079 and P5A7280 which documented satisfactory as-built conditions. The inspector had no questions.

b. The inspector accompanied NMPC startup QA during a turnover walkdown of the HPCS Diesel Generator fuel oil and air start systems. The installed components were examined for construction attributes and conformance with drawings FSK-8-9C, "Flow Diagram/Standby Diesel Generator Fuel" and FSK-12-4C," Flow Diagram/Air Start-up Standby Diesel

Generator." The inspector identified the following concerns relative to FSK 12-4C to the licensee:

- The slope between valves V56A and V56B was not in accordance with the diagram. The licensee issued Engineering Change Notice EGA-602 and Problem Report 01464 to correct the diagram.

- The diagram depicts valves V33A and V33B as open, but also indicates they are locked closed. Engineering Change Notice EGA-602 and Problem Report 01462 was issued to correct the drafting error such that the valves are clearly indicated to be open.

- Valve V28A was missing the operating handle. Deficiency Report M05159 was issued to obtain a new handle.

The location, identification, and installation status of the other air start and fuel oil components was verified. NMPC Surveillance Report 85-10357 was generated to document the turnover. The inspector found the NMPC SU QA personnel knowledgeable of the system characteristics.

The inspector examined small bore pipe support BZ-452-NH. The support tube steel cantilevered off an embedment strip, however the end of the tube steel was welded across a seam in the embedment strip. The inspector requested that the licensee assure the support was in conformance with design requirements, as previous NRC item 83-07-04 had identified the inadequacy of the noted condition for ITT large bore supports. The licensee found the support was not installed in accordance with sketch SK-4710-MS-73-2 that depicts how to bridge the embedment plate seam. The licensee stated the support had been QC inspected, as-built inspected and had progressed through the ASME N-5 program. The licensee took the following actions:

- NMPC SU-QA issued Corrective Action Report 85-1019 and requested an evaluation for reportability under 10 CFR 50.55(e).

- NMPC issued Nonconformance Report 2-85-0005. The support condition was found accept-as-is on the basis of a SWEC calculation.

- SWEC issued Nonconformance and Disposition (N&D) report 13420. SWEC found the configuration acceptable.

- NMPC Request for Evaluation 85-028 was evaluated by the Safety Review Committee. The condition was found not reportable.

The licensee determined the potential scope of the problem would have to be investigated as the SWEC QC inspection attributes did not address the prohibition from welding across the seam. Pending the completion of the licensee investigation, this item is unresolved. (85-27-03)

c. The inspector reviewed the following documents for the HPCS piping:

- FSAR figure 6.3.6

- Flow Diagrams FSK-27-4A/B/C, "High Pressure Core Spray"

The inspector accompanied NMPC startup QA during a turnover walkdown of those portions of the system outside primary containment. The following concerns were addressed to the licensee:

- Valves V123 and V115 were reversed. Problem Report 2079 was generated to document this situation.

- Instrument Tubing K-098 at RAK 124 was not clamped to a cross brace. Deficiency Report 8205 was issued.

- Several inconsistencies were noted between the flow diagrams and the FSAR figure. Specifically, valves V7 and HCV116 were not shown in the FSAR, restricting orifice D001 was not shown on FSK 27-4B, the minimal distance for valve F010 was not achieved, and the location of the differential pressure transmitter near valve F038 was not correct in the FSAR. As indicated in section 3.qq of this report, the accuracy of FSAR information is an open item.

The QA turnover was documented on Surveillance Report 85-10357. The inspector additionally discussed several other issues with the HPCS test engineer, which were satisfactorily resolved. The inspector had no further questions.

d. The inspector accompanied NMPC QA personnel during a turnover walkdown of HPCS electrical equipment ENS*SWG102 cubicles 2C, 3B, 3C and 4. The inspector reviewed the associated SWEC drawings EE-9NS and EE-9NR. The inspector had no questions.

No violations were identified.

12. Unresolved Items

Unresolved items are matters for which more information is required in order to ascertain whether they are acceptable items, or violations or deviations. An unresolved item was identified in paragraph 11.b of this inspection report.

13. Management Meetings

At periodic intervals during the course of this inspection, meetings were held with senior plant management to discuss the scope and findings of this inspection. Based on the NRC Region I review of this report and discussions held with licensee representatives on October 18, 1985, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.