

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-410/84-13
Docket No. 50-410
License No. CPPR-112 Priority -- Category A
Licensee: Niagara Mohawk Power Corporation
300 Erie Boulevard
Syracuse, New York 13202
Facility Name: Nine Mile Point, Unit 2
Inspection At: Scriba, New York
Inspection Conducted: July 30-September 6, 1984
Inspector: Robert A. Gramm 10/4/84
R. A. Gramm, Resident Inspector date
Approved By: S. J. Collins 10/5/84
S. J. Collins, Chief, Reactor Projects date
Section 2C, DPRP

Inspection Summary:

Inspection on July 30-September 6, 1984 (Report No. 50-410/84-13)

Areas Inspected: Routine inspection by the resident inspector of work activities, procedures and records relative to allegations; design change control; revetment ditch; personnel qualifications for pre-operational testing; service water system hydrotest; preventive maintenance during startup and pre-operational test phases; standby liquid control system installation; weld filler metal control; instrumentation QA procedures; and reactor pressure vessel internals welding requirements. The inspector also reviewed licensee action on previously identified items and performed plant inspection tours. The inspection involved 114 hours by the inspector.

Results: Two violations were identified: Incorrect bolting hardware installed on ASME service water systems strainer tops (paragraph 8); and lack of control for field issued weld filler metal (paragraph 11).

DETAILS

1. Project Organizations

Niagara Mohawk Power Corporation (NMPC)

Stone and Webster Engineering Corporation (SWEC)

General Electric Company (GE)

IIT-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 personnel, supervision, and quality inspection personnel in the work areas. Observations are noted below:

The inspector reviewed the licensee program for calibration of QC torque wrenches used to verify installation torque of structural steel high strength bolts. The inspector ascertained that while the SWEC calibration manual defines a 2 month calibration interval, the inspection wrenches in actuality are calibrated every two days in compliance with the ANSI N45.2.5 requirements. SWEC QC maintains a logbook to document these calibrations.

The inspector witnessed modifications to the main steam safety vent lines to the suppression pool. The associated vacuum breakers were relocated to the drywell portion of the vent line. The inspector reviewed Iso 73-8; N&D IG 3533; GPE controls documents LA-241-495, LA-241-474 and LA-241-495. The modifications were proceeding in accordance with the engineering and vacuum breaker manufacturer directions.

The inspector examined in-process support installation activity for large and small bore pipe supports and an instrumentation tubing support. The following supports were examined: BZ-421BQ BZ-71AFN-1, BZ-19XL-3 and BZ-452MM. No deficiencies were identified by the inspector.

The inspector witnessed the conduct of circuit breaker testing for emergency switch gear 2 BYS * SWG0023. The inspector reviewed: test folder 74.002; test procedure ED.GENE. 020 Rev 1 attachment 121; and Field revision form 118. The testing of the 125 V DC Air Circuit breakers was conducted in accordance with the associated test instructions.

The inspector reviewed current site practices in regard to limited accessibility welding requirements defined within Regulatory Guide 1.71. SWEC engineering issued Engineering and Design Coordination Report (E&DCR C02327) which offered an interpretation of when a limited accessibility welder must be utilized. ITT has instituted a procedure whereby at joint fit up, QC identifies obstructions within 12 inches of the joint. An ITT welding engineer evaluates the obstruction as to whether the welding process is detrimentally impacted. If necessary, the welding engineer specifies that a limited accessibility qualified welder shall be used to weld out the joint. The inspector was informed that the planner package shall include documentation of the limited accessibility check. The inspector verified that in contradiction to the SWEC construction weekly Most Wanted List of August 3, 1984, which stated that the requirements were eliminated, Regulatory Guide 1.71 requirements are still to be observed at the site. The inspector ascertained that the ITT system addresses the intent of Regulatory Guide 1.71.

The inspector examined the unsupported cable spans for cables within tray 2TX186G. The unsupported span was observed to be 65 inches which was greater than the allowable 54 inches. The inspector was presented with E&DCR C02510 which defined the method to measure unsupported cable length when the cable passes through a blockout. The alternative measurement method demonstrated the cable acceptability.

The inspector identified that partial pulled cables 2CCPAGX001 and 2CCPAGL500 appeared to violate specification E061A minimum bend radius requirements for temporary training. SWEC QC stated that E&DCR C02523 negated the adherence to maintaining minimum bend radius for nonshielded cables for temporary training. The inspector questioned licensee QA as to whether the cable manufacturer would warranty cable for which no precautions are observed during low tension training. SWEC engineering reissued E&DCR C02523A which states that cable damage as evidenced by deformation of the cable jacket shall be identified by QC as an unsatisfactory condition. The inspector noted that the cable conditions originally identified no longer are required to meet quantitative minimum bend radii and are therefore acceptable if QC does not identify any jacket deformation at the completion of cable pulling activities.

No violations were identified.

3. Licensee Action on Previously Identified Items

- a. (Closed) UNRESOLVED (82-01-07): QA requirements not specified on purchase orders. This item was escalated to violation 82-03-11. The noted violation was closed, based upon satisfactory licensee corrective actions, within inspection report 82-10. This item is considered to be closed.
- b. (Closed) UNRESOLVED (82-03-07): Inspection of concrete anchor bolts installed by L.K. Comstock. This item is considered to be closed on the basis that it was escalated to violation 82-10-05 which addressed site wide deficiencies in the concrete anchor bolt inspection program. This item is closed.
- c. (Closed) CONSTRUCTION DEFICIENCY REPORT (83-00-01): Recirculation pipe weld defects. NMPC reviewed radiographs for GE supplied piping and found that unacceptable indications were apparent as documented on Nonconformance Report (NR)47. The subject NR identified fourteen questionable spool pieces. GE Field Deviation Disposition Request (FDDR) KG1-108 directed the questionable welds to be re-radiographed. The re-radiography showed that only one weld contained a unacceptable defect. This defect was excavated and repair welded. Final Nondes- tructive Examination (NDE) showed that the defect had been removed. The repair area was scheduled to be visually examined during the hydrostatic test of the pipe. This open work item is currently tracked on the RCI extra work information sheet and open FDDR KG1-108. The licensee verified the GE fracture mechanics evaluation of the valid defect. The end of design life flaw size was determined by GE to be less than the allowable flaw size. GE personnel were instructed to re-radiograph and resolve indications identified as "x-ray defraction." This item is closed.
- d. (Closed) UNRESOLVED (83-02-05): JCI control of SWEC instrumentation tubing support drawings. Engineering and Design Coordination Report (E&DCR) C01762, revised the JCI tubing and support installation to a Non-ASME status. Field weld identification was added by JCI within the Installation/Fabrication packages as directed by E&DCR C01664. This item is closed.
- e. (Closed) UNRESOLVED (83-03-04): Use of raceway tray covers as fire barriers. The inspector reviewed E&DCR C42315 wh' defined the tray covers to be separation barriers. Review of FSAR sections 8.3.1.1.4, 8.3.1.4.2 and 9A.2-3 revealed that specification EO61A is consistent with the appropriate requirements regarding fire barriers. This item is closed.

- f. (Closed) UNRESOLVED (83-04-03): Inspection of HVAC installations. Quality Control Instruction 10.08 "Surveillance Inspections" defines the necessary level of inspection for the HVAC in-process inspections. The inspector was informed that QC will inspect 100% of the safety related ducts. The control room ducts will be visually inspected and leak tested. The QAIP N20P413LFA001 states that duct storage areas are to be maintained in accordance with the guiding ANSI N45.2.2 requirements. In-place storage inspections are conducted to confirm this aspect. Review of the control building by the inspector revealed no discrepant conditions. The duct reject tags applied in the field defined the ducts to be nonconforming items. The reject tags are standard items within the SWEC system and are readily recognizable. The inspection plan (N20P413LFA001) has been revised to require that all inspections, with the exception of comparison to as-built drawings are performed prior to the final walkdown. This item is closed.
- g. (Closed) UNRESOLVED (83-07-03): Inspection plan adequacy for high strength bolt installations. The SWEC inspection plan (N2HSBOLTFA001) was modified to add specific criteria regarding bolting and proper washer material to be used with either oversized or slotted holes. The inspector observed long slotted holes on beam D4236-9 which were not covered with plate washers. Review of Cives drawing E616, SWEC drawing ES-71E-4 and Nonconformance and Disposition (N&D) report 5054 showed that the connection was in accordance with the design. This item is closed.
- h. (Open) DEVIATION (83-12-06): Documentation of hold point inspection. The inspector was informed that all specifications and associated inspection plans were reviewed for hold point accuracy. This item will be re-reviewed for closure when SWEC inspection conduct necessitates that Inspection Reports (IRs) be used in the field such that inspection hold point acceptance is appropriately documented. This item remains open.
- i. (Closed) FOLLOWUP ITEM (83-16-02): Deformed stud welded threaded attachment. SWEC procedure CMP 6.3 was revised to state that plastic deformation of a threaded attachment was prohibited and that the item could not be reused. N&D 8403 addressed the removal of the specified attachment. This item is closed.
- j. (Closed) UNRESOLVED (84-06-01): Inspection of J-bevel weld preparations. ITT procured radius gauges for the inspection of the weld preparations. Training was conducted on the specification requirements and the use of the gauges. E&DCR F01725 was issued to define the tolerances on the J-bevel dimensions. The radius which was machined on the site was within the defined tolerances. ITT CAR645 was closed out based upon the implemented corrective actions. This item is closed.

- k. (Closed) FOLLOWUP ITEM (84-06-02): ITT welding engineer qualifications. The licensee obtained copies of a training certificate and written examinations which demonstrate that the welding engineer in fact passed the H. J. Kaiser weld inspection course. The course director attested to the validity of the above documents. The welding engineer's formal education could not be verified as the school records were not maintained. The education in question is not required by ITT for the job position of welding engineer. This item is closed.
- l. (Closed) FOLLOWUP ITEM (84-11-02): Indications in the bio-shield wall. SWEC Project Memorandum (PM) 70 "Heavy Weldments" gives additional precautions to be implemented for welds and member thickness in excess of 1/2 inch. Specification P301Z amplifies further the controls for the bio-shield wall including: increased preheat temperature for the bio-shield wall; 1 hour preheat soak; weld overlay applications; 72 hour delay for MT of overlay; increased electrode control; 2 hour postheat for bio-shield wall; prompt notification of SWEC engineering when defects are identified; and engineering witness of defect excavation. SWEC engineering has evaluated the noted defects at the corners of the bio-shield wall openings and determined that these are areas of high residual stress concentrations. The previously mentioned precautions serve to alleviate the residual stresses and provide for prompt engineering attention to the discontinuities and repairs. Adequate precautions are currently implemented on the overlay weld applications. This item is closed.
- m. (Open) UNRESOLVED (84-11-06): Control of seismic clearances. The inspector identified a Category I pipe support (BZ-74HX) which had been final inspected by ITT. The pipe support was found to be within 1/8 inch of an adjacent Category III piping run. This constitutes a further example where inadequate control exists to preclude potential seismic interferences. This item remains open.

4. Allegations

During the inspection period the inspector conducted inspections and interviews in response to allegations presented to the NRC, additionally the inspector monitored licensee actions resulting from the presentation of selected issues to the licensee as noted below:

- a. (RI-84-A-98) The NRC received an allegation regarding improprieties involving JCI instrumentation tubing and supports. The allegor stated the following problems remain uncorrected within the JCI program:
 1. Weld toes are vibroetched in violation of AWS code.
 2. Base material thickness checks are not made after shim plate removal from tube steel supports.
 3. Uncontrolled weld rod exists in the plant.

4. Welding procedures do not specify backing gas flow rates.
5. Instrumentation tubing has been burned through due to improper welding practices.
6. Scrap material is not color coded in a consistent manner.
7. Inspectors do not check welding leads with amperage probes.
8. Insufficient engineering training is provided.
9. Lack of in-process QC hold points to assure correct installations.
10. QC does not verify on 100% basis the transfer of heat numbers during cutting operations.
11. Welders are issued several types/heats of weld rod simultaneously.
12. Argon gas meters do not have instructions provided.
13. Personnel access to the JCI document vault is not enforced.
14. Procedure books are not maintained with the up to date revisions.
15. Welding procedures are not maintained at the location of welding.
16. JCI audits are not performed.
17. Weld rod portable ovens are not kept energized.
18. Test booth welders are arbitrarily rejected for root concavity.
19. General lack of QC inspector knowledge.
20. JCI site management is not competent.

The above concerns were presented to NMPC for licensee evaluation. The licensee has completed an investigation into the noted concerns and transmitted the findings to the NRC. This item is unresolved pending NRC verification of the licensee findings during a future inspection report. (84-13-01)

- b. (RI-84-A-104) The NRC received an allegation regarding inadequate inspections of electrical termination bolting hardware. In particular it was alleged that:
 1. The allegor was demoted for raising quality concerns to SWEC QC management.

2. Inspection records were improperly amended.
3. An Engineering and Design Coordination Report was suppressed by quality management.
4. Questions on specification requirements were not answered by QC supervision.
5. Proper termination hardware cannot be distinguished in the field.
6. Procedural requirements for marking of bolts are not adhered to.
7. Engineering provided unsatisfactory direction on method to verify bolting hardware material.

NRC followup to the allegor's concerns was delegated to both the inspector and regional investigators.

The inspector obtained Inspection Reports (IRs) E4007530 and E4006901. The original unsatisfactory attribute regarding bolted joints was observed to have been amended to satisfactory by a qualified inspector. During an interview with the inspector who modified the reports, it was stated that a physical verification was made to assure that the proper bolts were in place, although this was not documented on the IRs. The inspector reviewed the following SWEC procedures for guidance on amending inspection reports:

- QCI 14.02 "Unsatisfactory Inspection Reports"
- QS 14.2 "Inspection Report System"
- QAD 14.1 "Inspection Report System"
- Inspection System Handbook section 2.1
- SWEC QA manual section 17
- ANSI N45.2.9 "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants"
- Regulatory Guide 1.88, "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records."

The noted amendments were properly made by a qualified inspector who signed and dated the change. The individual who made the change further stated that it was verified as acceptable during a re-inspection. The manner in which the change was made conforms with the listed requirements.

The inspector obtained an Interoffice Correspondence (IOC) which contained four concerns regarding specification E061A requirements for power cable terminations. The inspector reviewed the IOC concerns with SWEC electrical QC personnel and the following items were answered:

- Spec E061A page 6-14 requires that both cable ends are to be ready to be landed prior to meggering the cable.
- QCI 10.08 inprocess surveillance inspection procedure states 100% of power cables are to be witnessed for continuity.
- SWEC QC readily identified Thomas & Betts (T&B) literature which specifies T&B lug hardware and associated wire and stud sizes.
- No requirement was identified within E061A for proper cable support inside electrical equipment. This is a valid concern.

The inspector notified NMPC of the hardware concern. NMPC responded that two audits, SEG audit EA428 and NMPC audit 02-SWEC-84, had identified the identical concern of proper cable support within electrical cabinets. The inspector interviewed the intended recipient of the IOC who stated that he had no remembrance of receiving that particular document.

The inspector examined typical power cable terminations in the field to ascertain if the field hardware could be identified as silicon-bronze. Depending upon the size of bolts, and presumably the manufacturer, the bolts either had no head marking or other varied symbols (H or SB). The inspector examined the L.K. Comstock supply station. Bolting hardware was delivered in boxes which state the material composition. Silicon bronze hardware was segregated and stored in special areas. The inspector noted that craft present stores requisitions which specifically call out the bolt size and bolt material. The inspector ascertained that silicon-bronze hardware was visually distinguishable from other bolting hardware in the supply station. The receiving and disbursement of silicon-bronze hardware was found to be performed in a controlled manner.

The inspector examined termination hardware for cables 2VBAAGL600-TO, 2VBAAGK201-TO, and 2VBAAGL600-FR. Some of the bolts were head marked in a similar manner to silicon-bronze hardware observed at the L. K. Comstock supply station. All the hardware was visually examined by the inspector and found to be silicon-bronze. The reverification of proper bolting hardware was simultaneously performed by a SWEC QC inspector as documented in IR E 4009110.

The inspector examined an IOC from SWEC engineering which stated that silicon-bronze hardware is not required to be marked and that the material can be visually distinguished. The inspector reviewed the following documents which pertain to silicon-bronze hardware and material traceability:

- ASTM standards B96, B98 and B99, B2¹9 and E527
- CMP-8.5, "Identification of Random Metal Products"
- Specification E061A
- QS-8.12, "Material Identification and Control of Random Metal Products"
- QAD-7.7, "Receiving Inspection"
- CSI-20.12

The site procedures require material marking for those items so designated by the engineering department. The inspector identified no requirement for the marking of silicon-bronze cable termination hardware. The inspector is in agreement that the items are visually distinguishable.

During followup inspection to allegations, RI-84-A-98, RI-84-A-104 and RI-84-A-75, it was apparent to the inspector that adequate feedback mechanisms are not in place to assure that QC inspector questions are answered by their supervisor in a timely manner. In several cases, IOCs document an inspector's concern or question and the recipient QC supervisor had apparently neglected to respond to the questions. To ensure proper implementation of the QC inspection program, it is necessary to provide inspectors with guidance on specification requirements. In response to the inspector's concern, SWEC QA issued a memorandum (9MF-414) to all site QA organizations with regards to the requisite response to IOCs of this type. The inspector's concern regarding adequate supervisory response is unresolved pending followup NRC inspections to assure that inspector generated questions are properly answered. (84-13-02)

5. Design Change Control

Within inspection report 84-11, the inspector had reviewed SWEC Engineering and Design Coordination Reports (E&DCRs) for applicability to backfit the design changes on previously installed and accepted installations. The inspector has since been informed that SWEC engineering policy is that retrofit is necessary unless the engineer specifically states otherwise

within the E&DCR. This generic policy was transmitted from SWEC to the site subcontractors by the site project manager. SWEC engineering has further committed to specifically stating on the E&DCR whether retrofit is required.

During the inspectors review of two previous NRC identified items, specifically 83-07-04 and 83-12-11, it was apparent that ITT did not backfit more stringent inspection criteria against previously accepted pipe support installations prior to NRC involvement. Discussions with ITT personnel indicate that a possibility exists whereby the backfit requirements of generic E&DCRs have not been appropriately implemented. This concern regarding the backfit of generic E&DCRs is unresolved pending further licensee investigation into the matter. (84-13-03).

No violations were identified.

6. Revetment Ditch

The inspector reviewed the documents which define the revetment ditch installation. The revetment ditch is located on the lake shoreline. The revetment ditch provides plant protection from flooding during the occurrence of the probable maximum surge and the driving wind force due to the probable maximum windstorm. In particular, the inspector reviewed the following documents:

- FSAR sections 2.4.5.5 and 3.4
- SWEC "Design and Analysis Method for Revetment Ditch System"
- SWEC Specification G003P, "Revetment Ditch System"
- SWEC drawings EY10A - EY10E
- QC inspection plans N20G003PFA001, "Dolosse Precasting" and N20G003PFA002, "Armor and Underlayers Stone Quality"
- NMPC checklist C023-S-Tu

The inspector witnessed the placement of revetment ditch stones and observed the dolosse configurations. He reviewed SWEC QC surveillance reports and NMPC surveillances for assurance of required quality attention to the Category I installation. He noted hard markings on the dolosse and associated Tuscarora log books which document final placement location of the dolosse. Identified stone weights were observed to be within the specified limits. The revetment ditch installation was noted to be in accordance with the guiding design documents.

No violations were identified.

7. NMPC Personnel Qualifications for Pre-Operational Testing

The inspector ascertained that NMPC has not initiated any pre-operational test conduct. The NMPC personnel who will participate as test engineers, supervisors and plant operational management have been assigned. Site test procedure review groups such as the Joint Test Group (JTG) have been established and procedure review has been initiated.

The inspector reviewed the following documents which describe personnel qualifications for the pre-operational test phase:

- FSAR Table 1.8-1 pages 8 and 64 to 67
- FSAR Sections 13.1 and 14.2
- Regulatory Guide 1.8, "Personnel Selection and Training"
- Regulatory Guide 1.58, "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel"
- ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel"
- ANSI N3.1-1978, "Selection and Training of Nuclear Power Plant Personnel"
- ANSI N45.2.6 Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants"
- NUREG-0737 Item I.G.1
- NMPC Project Manual Section 3.6, "Startup and Test Plan"
- NMPC Project Manual PPNM700, "Startup Administrative Procedures"
- SAP-2, "Preoperational and Acceptance Test Procedure Development and Test Conduct"
- SAP-6, "Qualification and Certification of Test Personnel"
- SAP-102, "Joint Test Group"

The inspector requested the certification packages for the JTG members and alternates. The members were certified in accordance with both Regulatory Guides 1.8 and 1.58. All the members, with the exception of the QA representatives, were designated as Level III test engineers. Numerous members

and alternates have been licensed as Senior Reactor Operators (SROs). The inspector reviewed the basis of the personnel certifications and found them to be consistent with the guiding requirements.

The inspector noted two discrepancies as to the involvement of the Station Superintendent as the JTG Chairperson and the FSAR compliance to either ANSI N18.1 or N3.1. The inspector was provided with FSAR amendment 13 which substituted the NMPC Startup Manager as JTG Chairperson and clarified that personnel certification would be in accordance with N3.1-1978.

The inspector has no further questions regarding pre-operational test personnel qualification at this time.

No violations were identified.

8. Hydrostatic Test Conduct

The inspector examined the requirements for the conduct of piping hydrostatic testing contained within ASME Division 1 Section III Article ND-6000. He witnessed the preliminary attempt to conduct a hydro test on portions of the Service Water System. The inspector reviewed the associated hydro test package and ITT procedures listed below:

- ITT FQC 4.2-9-10 "Procedure for Hydrostatic and Pneumatic Testing"
- ITT Hydro Planner FP#175 HT
- Test Instruction "Service Water System (2SWP)" MP.0011.005 Rev. 7
- Inspection Reports IPC 0248, IPC 0270, FU-4135, FU-4134, IP-5939, E-005, and FU-4136
- SWEC isometric drawings 21-17, 21-18, 21-19, 21-20, 21-21, 21-22, 21-108, 21-109, 21-110, 21-111, 21-112 and 21-113

The inspector noted the presence of the Authorized Nuclear Inspectors, the use of calibrated pressure gages, provision of vents and relief valves and the exposure of all pipe joints for leak observation. The pressure could not be maintained and the test was halted to fix the leaking components.

During the test conduct, the inspector observed that the ASME Service Water Strainer (4A-4F) top bolts were not fully engaged with the associated nuts. The inspector requested that the bolting be verified in accordance with ASME ND-4711 which states that bolting of mechanical joints shall be engaged in compliance with the design. SWEC QC investigated the hardware and found that the bolts were shorter than identified on the component N-2 data report and that the nut material was not consistent with the data report. This deficiency was documented on Nonconformance and Disposition (N&D) report 8974.

The inspector was verbally informed that other parties had identified the inadequate thread engagement prior to the hydro test conduct, he was shown SWEC IR-M4S03142. The IR did not explicitly state that the hardware was deficient as it involved the torquing of the bolts without QC involvement. Within hydro planner package FP#175 HT, the inspector identified an IOC from SWEC engineering which addressed ITT concerns on the lack of thread engagement. The IOC stated the bolts were acceptable on the basis of the ANI witness of the shop hydro test of the strainer assembly.

The following documents define the proper methods to identify and disposition nonconforming items:

- PSAR Section D.3.16
- SWEC QS 15.1 "Nonconformance and Disposition Report"

SWEC procedure QS 15.1 states that any item which deviates from engineering requirements and which requires engineering disposition, should be identified on an N&D for engineering evaluation.

The inspector was informed that all six strainer tops were improperly bolted with short bolts. Site receiving inspection does not inspect these items for Category I equipment as that is the responsibility of the vendor QC personnel. It is apparent that the vendor QC inspection was deficient as the discrepant hardware was not identified prior to release to the site.

The failure of the vendor inspection program to detect the deficient hardware and the further failure of site personnel to properly document and disposition the improper hardware is a violation of 10 CFR 50, Appendix B, Criterion X and XV. (84-13-04)

9. Preventive Maintenance During Startup and Pre-Operational Test Phases

The inspector reviewed the requirements for performance of Preventive Maintenance (PM) of equipment after that equipment has been turned over from construction to either SWEC Advisory Operations (ADOPs) or to NMPC for pre-operational testing. Specifically, the following documents were reviewed:

- Specification SM01, "Storage and Maintenance During Storage of Permanent Plant Equipment"
- PTPD-7.1, "Preventive Maintenance During the Preliminary Test Phase"
- E&DCRs F01531 and F01538

Specification SM01 addresses required PM measures to be established while equipment is located at the warehouse, at the in-plant design location; or after turnover to the construction test group. The inspector noted that

SMO1 has been modified by a number of E&DCRs which have added requirements for PM during startup testing. The inspector attempted to ascertain the adequacy of the PM program which is planned for pre-operational testing.

After completion of the above document review and discussions with engineering personnel in the PM and ADOPs departments, the following concerns remained unanswered:

- a. Electrical equipment are meggered at periodic intervals, typically every 3 months, during in plant storage. These periodic megger checks are not performed during the startup test phase. Equipment can be held by ADOPs for extended periods of time, the question remains outstanding whether sufficient insulation checks are scheduled for the time period from construction release until the plant goes on line.
- b. E&DCR F01531 eliminated the in-place requirements to lubricate the centrifugal fan damper linkages at 6 month intervals to prevent corrosion during the test phases. The inspector is concerned that these linkages should be lubricated after turnover to preclude the corrosion problem.
- c. E&DCR F01538 eliminated QC involvement during the test phase during the disassembly of the strainer mechanisms. QC had witnessed the identical disassembly during in-plant storage. The inspector is concerned that QC involvement has been improperly eliminated.
- d. Specification SMO1 addresses the energization of cabinet heater elements to prevent condensation buildup while the heater is connected to temporary power. The inspector requested to be provided with the program to ensure that, after conversion to permanent plant power, the heater energization will be controlled and checked.
- e. The inspector requested information on the procedural controls which ensure equipment is not released to SWEC startup prior to the associated SMO1 PM requirement definition for that equipment during test phases.
- f. The inspector requested definition of the NMPC PM program to be instituted upon equipment turnover for per-operational testing. He was verbally informed that SMO1 requirements would be utilized, the inspector requested the procedural statement regarding that program implementation.

The above concerns regarding the adequacy of specific equipment PM; QC involvement in startup testing PM; generic electrical equipment PM questions; and definition of the NMPC pre-operational PM program are unresolved (84-16-05).

10. Standby Liquid Control System Installations

The inspector reviewed the following documents which pertain to the Standby Liquid Control System (SLCS):

- FSAR section 9.3.5
- GE Specification 22A7641AB, Standby Liquid Control System Data Sheet"
- GE Specification 22A2908AF, "Design Specification Data Sheets for Standby Liquid Control System"
- GE MPL C41-4010 drawing 914E359
- GE MPL C41-4010 drawing 761E218TY
- GE FDDRs KG1-205, KG1-204
- GE FDDI - 21-31263
- SWEC drawing EC-33R-3, "Equipment Foundation Details EL 289'0" Reactor Building"
- SWEC E&DCRs C17181, C18351, C18469, C16786 C18939, P11618, P01128, C19174
- SWEC drawing EP-75A-6, "Standby Liquid Control Reactor Building"
- SWEC drawing EP-75B-6, "Standby Liquid Control Reactor Building"
- ITT ISO 67-1 and 67-2
- RECO drawings VPF-5666-60-5 and VPF-6037-2-1
- SWEC Punch List Item Reports P-FR-204, P-04173, P-FR-205

The installed SLCS pumps P1A and P1B and boron solution storage tank were examined by the inspector. The pump foundation construction and welding details were verified to be in accordance with the design. The equipment location and anchor bolts were similarly in accordance with the appropriate design documents. The FSAR system description was consistent with the site engineering drawings. The inspector noted that the GE specification 22A7641AB stated that the boron solution transport time through the SLCS discharge piping to the High Pressure Core Spray header should not exceed 30 seconds. He requested the calculation to demonstrate that the transport time was met for the site piping. The inspector was provided with SWEC calculation A10.1-D-9 which identified the transport time to be 18 seconds.

The inspector reviewed SWEC QC records relating to the SLCS pump installations:

- SWEC Inspection Reports M4020209, M3022232, M3021595, W4020051, M7001434, M3021596, W3022408, W4020051, M3021598, M4022798, M4022800, M1001198
- SWEC N&Ds 6069, 8034, 6321, 7195

The inspector found the inspection reports to properly describe the current installation of the SLCS pumps.

The inspector reviewed Hold Point form usage by the SWEC Mechanical QC group. The forms serve as QC documentation of intermediate steps within the equipment installation process. The inspector questioned the absence of certain data from that form. The inspector was informed that NMPC had previously identified the necessity to document calibrated tool identification and to identify applicable design documents on the hold point form. The inspector had no further questions.

No violations were identified.

11. Weld Filler Metal Control

The inspector reviewed the following documents which pertain to weld filler metal control for the site fabricators:

- Specification 7201, "Field Storage, Handling, and Issuance of Welding and Brazing Materials"
 - RCI procedure GWS-1-01, "General Welding Specification for the Welding Program To Be Used on Nine Mile Point 2"
 - ITT FQC 5.1-1-9 "Storage and Disbursement of Welding Materials"
- a. The inspector examined JCI rod issue station 3. The holding oven contents were clearly identified. Weld filler metal items were appropriately marked. Calibrated temperature gages were fitted on the holding ovens. The ovens were observed by the inspector to be maintained at the proper temperature. Material storage was segregated in accordance to filler metal composition and heat/lot numbers.
 - b. The inspector examined ITT rod issue station 2. The portable warming ovens were found to be energized and the rod room attendant stated that the ovens had been calibrated at periodic intervals. The weld filler metal was appropriately color coded. The temperature of the holding ovens was correct for the stored contents. The holding oven thermometers were calibrated as required. Consumable inserts were observed to be properly tagged.

- c. The inspector examined the RCI rod issue station. He noted that access was controlled to the area. Filler metal was segregated by heat number. The holding oven temperature was maintained within tolerance. The holding oven doors were clearly marked with the type of rod stored within. The inspector examined the Filler Material Control Sheet. The inspector identified that E-309-16 electrodes (Heat No. 463701, Lot No. 10196-2) were contained within a holding oven and that RCI did not have the associated material certificates on file. NMPC QA followed this item of concern as documented in surveillance report W-84-778. The material certificates were found at the NMPC Oswego Steam Station (IR W 4001058). RCI identified the procedural nonconformance (NCR-NMP-133) and had scrapped the material.
- d. The inspector identified a SWEC portable rod oven (316) which was de-energized, the oven and the contents within were found to be at ambient temperature. The rod had been issued at 6:45 AM and the inspector discovered the situation at 3:00 PM, thus exceeding the 5 hour exposure limit of specification 7201. The inspector notified SWEC QC of the discrepant condition.

The failure of SWEC to maintain the welding electrodes in accordance with specification 7201 requirements is a violation of 10 CFR 50, Appendix B, Criterion V (84-13-06).

The nonconforming electrodes were returned to the rod issue station then were re-released by SWEC within 23 portable rod ovens the following day. The inspector was informed that the electrodes in question were recalled, the remaining electrodes within storage oven 2 were scrapped along with the recalled material and unsatisfactory IR W4023002 was generated to document the 17 welds which had been partially fabricated with potentially nonconformance material. In response to the NRC concern, NMPC QA conducted an extensive verification of portable rod ovens in the field. One oven was detected to be de-energized. Corrective Action Request 84.0051 was issued and SWEC welding with low hydrogen electrodes was halted. All site welding personnel working for SWEC, RCI, ITT and JCI, were retrained on the requirements for handling of field issued electrodes. All SWEC portable rod ovens were checked and found to be functioning properly. Upon completion of the retraining programs, welding operations resumed.

The NRC identified deficiency is closed on the basis that the potentially deficient hardware has been identified for appropriate disposition. The nonconforming material has been scrapped. All welding personnel have been retrained to pertinent electrode handling requirements, and the NMPC stop work order has been lifted.

Based upon the above corrective actions which were implemented by the licensee during the conduct of this inspection, the violation stated above (84-13-06) is considered to be closed. No written response is required at this time.

12. Instrumentation QA Procedures

The inspector performed a review of JCI inspection procedures and engineering specifications. The following items were reviewed by the inspector:

- SWEC specification C081A, "Instrument Installation"
- QAS 602, QAS 902, QAS 904, QAS 1004, QAS 1005, QAS 1101, QAS 1201
- SP-1002
- TIS-101

The inspector requested that JCI describe the mechanism whereby instrument tubing line slopes would be verified and to verify that SWAGELOK compression fitting go/no-go gauges were available for QC inspection. JCI identified that a walkdown inspection would be performed to identify the line slope, NMPC QA committed that the walkdown would be performed in accordance with documented procedures. JCI identified the compression fitting check device and provided the inspector with the appropriate manufacturer's instructions.

No violations were identified.

13. Reactor Pressure Vessel Internals Welding Requirements

The inspector was informed that RCI would be performing modification work within the Reactor Pressure Vessel (RPV). The inspector reviewed the available engineering requirements for the modification of the core spray line brackets and feedwater sparger installation as follows:

- GE Specification 22A7145 "General Instructions for Reactor Assembly" (Section 12)
- GE MPL B13-3020, "Reactor and Assembly Installation Specification"
- GE MPL B13-3020, "As Built Requirements for Reactor Assembly"
- GE MPL B13-D019, "Feedwater Sparger"
- GE MPL B13-D001, "Reactor Assembly Drawing"
- E&DCR C18107
- GE FDI 17/31263
- GE Specification 21A2046, "Welding and Inspection Requirement for Assembly of Reactor Components"

- GE drawing 112D2978G002, "Bracket Modification Drawing"
- GE drawing 197R637, "Vessel and Component Drawing"
- GE Specification 795E216, "Modification Reactor Vessel"

The RCI scope of work had not been started pending SWEC review of work procedures. The RPV welding and modifications will be inspected within a future NRC inspection.

No violations were identified.

14. Unresolved Items

Unresolved items are matters for which more information is required in order to ascertain whether they are acceptable items, violations or deviations. Unresolved items disclosed during the inspection are discussed in paragraphs 4a, 4b, 5 and 9.

15. 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. Apparent violations of NRC requirements were discussed with licensee plant management during an exit meeting held on September 6, 1984.