

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-354/85-33

Docket No. 50-354

License No. CPPR-120

Licensee: Public Service Electric & Gas Company
80 Park Plaza - 27C
Newark, New Jersey 07101

Facility Name: Hope Creek Generating Station Unit 1

Inspection At: Hancocks Bridge, New Jersey

Inspection Conducted: July 8-12 and 15-18, 1985

Inspectors: *[Signature]*
for G. Nabuda, Lead Reactor Engineer

9.5.85
date

[Signature]
for N. Cawley, Summer Technical Intern

9.5.85
date

[Signature]
M. Dev, Rector Engineer

9.5.85
date

[Signature]
for W. Oliveira, Reactor Engineer

9.5.85
date

Approved by: *[Signature]*
Dr. P. K. Eapen, Chief, Quality Assurance
Section, OB, DRS

9/11/85
date

Inspection Summary:Inspection on July 8-12 and 15-18, 1985 (Report No. 50-354/85-33)

Areas Inspected: Routine announced inspection by region-based inspectors to assess the readiness for implementation of the Quality Assurance Program for Operations in the area of Audits and QA/QC Surveillances; Procurement Control; QA/QC Administration; Receipt, Storage and Handling; Test and Measuring Equipment; onsite operations review committee; onsite independent safety review group and offsite safety review committee. Licensee actions on previous NRC inspections were also reviewed. The inspection involved 176 inspection hours onsite by three inspectors and one summer technical intern.

Results: No violations were identified; three unresolved items impacting issuance of the OL were identified (onsite committee, paragraph 9; offsite committee, paragraph 10; independent safety review group, paragraph 11).

DETAILS

1. Persons Contacted:

Public Service Electric and Gas Company (PSE&G)

- *A. Barnabei, Principal QA Engineer
- *J. Carter, Startup Manager
- *D. Dodson, Engineer-Licensing and Regulation
- *R. Donges, Lead QA Engineer
- *R. Fryling, Associate General Solicitor
- *A. Giardino, QA Manager-Engineering and Construction
- *R. Griffith, Principal QA Engineer
- *C. Johnson, General Manager-Nuclear QA
- *R. Kyle, Project Control Engineer
- *S. LaBruna, Assistant General Manager-Operations
- J. MacKinnon, General Manager-Nuclear Safety Review
- *T. Martin, Vice President-Engineering and Construction
- *M. Metcalf, QA Startup Engineer
- F. Meyer, Manager-Site Services
- J. Nichols, Technical Manager
- *B. Preston, Licensing Manager
- R. Salvesen, General Manager-Operations
- *S. Schoenwiesner, Licensing Engineer
- *W. Schultz, Programs and Audits Engineer

NRC

- R. Blough, Senior Resident Inspector
- *S. Chaudhary, Senior Resident Inspector
- *J. Lyash, Resident Inspector

OTHER

- *E. House, PSE&G Consultant
- *M. Levin, PSE&G Consultant
- *J. Thurber, Assistant Deputy Public Advocate - New Jersey Department of the Public Advocate

*Those present at the exit interview.

2. Licensee's Operational Program Readiness

This is the first of a series of NRC inspections that will be conducted to establish the readiness of the licensee's programs to support the operation of the Hope Creek Generating Station. The intent of this inspection was to ascertain the readiness of the licensee's programs for operational phase of the plant in eight specific areas. These areas were: Audits and QA/QC Surveillance, Procurement Control; QA/QC Administration; Receipt, Storage and Handling; Test and Measuring Equipment; and activities of onsite operations review committee, onsite independent safety review group, and offsite review committee.

3. General Approach for This Inspection

Procedures were reviewed in each of the areas reviewed to verify that they were consistent with commitments and that specific activities were clearly defined. Employees were interviewed to determine that they were aware of their authorities and responsibilities, and were knowledgeable of applicable procedures. Training and personnel records of selected employees were also reviewed to verify that job incumbents had adequate education/experience or proper supplemental training for their positions. Records of activities that had taken place were reviewed to determine the effectiveness of the established program. When possible, ongoing activities were observed to assure they were accomplished in accordance with established procedures. These areas are discussed in paragraphs 4 thru 7. Specific items that require resolution and/or completion prior to issuance of an Operating License (OL) are also identified in paragraphs 9, 10, and 11. The completion of these items will be verified during a subsequent inspection prior to the issuance of the OL.

4. Measuring and Test Equipment Control :

4.1 Requirements/References

- Regulatory Guide (RG) 1.33 (Revision 2, February, 1978), Quality Assurance Program Requirements (Operation) which endorses ANSI N18.7-1976.
- RG 1.116 (Revision OR, June, 1976), Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Plants which endorses ANSI N45.2.8-1975.
- Hope Creek Operational Readiness Plan
- SA-AP.ZZ-022(Q). Revision 1, Control of Calibration Measuring and Test Equipment
- MD AP.ZZ 022(Q), Revision 0, Department Control of Calibrated Measuring and Test Equipment
- M9 CAP 001 Revision 5, PSE&G M&TE Calibration Center
- M9 CAP 003 Revision 2, PSE&G Nuclear Department Master List and Calibration Order

4.2 Documents/Activities Reviewed

- Test Package Release (TPR), ABC-0178, Main Steam 178 Loop Check
- TPR FWC-0086, Feedwater Pump RPM Indications and Verification of Trip Set Points

- TPR GKC-044, Retest of Temperature Control, HVAC, Auxiliary Building
- TPR GKC-0167, Functional Loop Calibration for Auxiliary Building HVAC Service Area
- TPR-GRC-0105, Reactor Building HVAC
- TPR-HHC-0001, Radioactive Laundry
- Hydraulic Torque Wrenches, Serial 6295
- Hydraulic Pump, Serial 53482
- Beckman Trace Moisture Analyzer, Serial 12105
- HC-I&C-0003 Digital Calibrator
- HC-I&C-0006 Heise Gauge
- HC-I&C-0011, Frequency Counter
- HC-I&C-0016, Wave Technical Function Generator
- HC-I&C-0030, Pressure Gauge
- HC-I&C-0032, Volt/Ohm Meter
- HC-MNT-0005 and 0006, Hydraulic Torque Wrenches
- PSSUG Bailey 7000 Test Set
- PSE&G Site QA Audit No. H-327, Control of M&TE Hydrotesting. Activities Conducted May 29, June 2, 1984. Issued June 21, 1984
- PSE&G Site/QA Audit No. H-350, Control of M&TE Hydrotesting Activities. Conducted February 27, June 5, 1985. Issued July 2, 1985
- Nuclear Department Audit No. NH 85 017 Hope Creek Operation. The audit was completed during the inspection. The results are being compiled.

4.3 Details of Review

4.3.1 Operational Readiness Plan

On March 18, 1985, the Instrument and Control (I&C) Group, task description ID No. IC-8, delineated two actions planned for implementing the Measurement and Test Equipment (M&TE) Program. The first action, the commencement of the program

after revision of SA-AP.ZZ-022(Q), Control of Calibrated Measuring and Test Equipment, has been accomplished. The second action, the turnover of the M&TE from the Start Up Group (PSSUG) to the I&C Group has also commenced. Similarly, on April 1, 1985, the Maintenance Department, task description ID No. MD-7, delineated five actions planned for implementing the M&TE Program. The first three actions, namely, the revision of SA-AP.ZZ-022 (Q); the issuance of MD-AP.ZZ-022(Q) for training; and the turnover of the M&TE Storage/Issuing Room (Elevation 102') have been accomplished. Actions still pending are identifying training requirements to the Technical Department for scheduling; and the turnover of the M&TE from PSSUG to the Maintenance Department.

4.3.2 Program Review

The inspector reviewed the documents in paragraph 4.1 and determined that the established controls for the M&TE Program accomplished the following:

- a. Responsibilities for establishing and implementing an M&TE Program are delineated.
- b. Development of an equipment inventory list including addition of new equipment.
- c. Identified the calibration status of M&TE.
- d. Established a recall system including the calibration/adjustment frequency.
- e. Out-of-calibration controls and traceability to previously tested or measured items.

4.3.3 Program Implementation

The inspector randomly selected M&TE that were being used in the field and verified the calibration status storage, issuance, use and return of M&TE as well as the recording of the data. The craft/technicians are knowledgeable of the use and care of the M&TE and their respective procedures, especially the need for using calibrated M&TE. The technicians also knew the procedural requirements for reporting damaged M&TE and equipment that are providing questionable results.

The M&TE Center (lab) is adequately equipped. The M&TE Center is also staffed with trained personnel to support the demands of both Hope Creek and Salem Stations. The M&TE Center is presently located in temporary trailers and will be moved to a permanent location within two years. The labs' working and reference standards are traceable to National Bureau of

Standards (NBS). The calibrations of M&TE are well documented in accordance with applicable procedures. Evaluation reports (ER) for equipment found out of calibration are processed in a timely manner. All Startup Group M&TE, that is being turned over to Operations Department as well as new equipment, receives a complete calibration check regardless of the last calibration check. The only exception is the rental M&TE provided by General Electric Company (GE). Contractually GE guarantees the accuracy. The lab reviews the certification data and performs a sample check on the specific equipment. The rental of M&TE is an interim action until the turnover from PSSUG to the I&C Group is completed.

4.4 Findings

- 4.4.1 Discussions are underway between the Technical Department and Maintenance Department concerning consolidation of I&C and Maintenance electrical test equipment. The inspector noted two potential concerns in this regard: (1) if there is a consolidation, the present storage and issue room may be inadequate to handle both I&C and Maintenance electrical test equipment and (2) training of the I&C personnel in the use of the Maintenance electrical test equipment may not be adequate if the consolidation becomes a fact. The I&C personnel acknowledged the above concerns.
- 4.4.2 Turnover of PSSUG M&TE to the Maintenance Department was originally scheduled for March 1, 1985. The July 1, 1985 Major Task Monthly Status Report for the Hope Creek Operational Readiness Plan indicated that the Maintenance Department will meet with PSSUG on July 8, 1985 to establish a turnover schedule. Although the meeting did not take place, the PSSUG Manager stated that they will meet with Maintenance Department to resolve the turnover problem in a most expeditious manner.

No violations were identified.

4.5 QA/QC Interface

The inspector noted that there was no QA/QC coverage for the selected Test Package Releases (TPRs). During the past two years, two in-depth site QA audits were conducted in the area of M&TE Control. The audits did not report any problems or concerns. Likewise the Nuclear Department QA Audit conducted in 1984 and the one recently completed in 1985 did not identify any problems. The next audit is scheduled in September, 1985.

5. Records Program

5.1 Requirements/References

- RG 1.88 (Revision 2, October, 1976), Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records, which endorses ANSI N45.2.9-1974
- Hope Creek Operational Readiness Plan
- SA-AP.ZZ-011(Q), Station Records Management and Retention Program
- Site Engineering Instruction (SEI) 5.4 (Draft)

5.2 Documents/Activities Reviewed

- M&TE records in the M&TE Center, Instrument and Control (I&C), M&TE Storage and Issue Room, and Maintenance M&TE Storage and Issue Room.
- Records receipt, filing, storage, film processing, issuance and transfer in the Hope Creek Operations Technical Document Room (TDR), Nuclear Department Records Trailer, and Engineering and Construction Records facilities.
- Nuclear Department Audit No. HC-84-50, Hope Creek Operational Initial Audit, conducted December 10-20, 1984 and issued January 21, 1985.
- Nuclear Department Audit No. NH-85-017, Hope Creek Operation. (Conduct of the audit was completed during the Inspection. The results are being compiled.)

5.3 Details of Review

5.3.1 Hope Creek Operational Readiness Plan

On February 14, 1985, the Technical Department, Technical Support Group identified three key elements in Task ID No. TE-6 of the Operational Readiness plan. Two key elements, the establishment of the Technical Document Room (TDR) and the incorporation of the Station procedures in the Records Management System, are completed. The third key element, the indexing of station records, is expected to be completed on schedule by August 1, 1985. This index will be updated regularly.

5.3.2 Program Review

The inspector reviewed the Records Program and determined that the retention of the quality records is in accordance with the NRC requirement. The program also identifies the responsibilities of individuals and organizations. The primary procedures are SA-AP-ZZ(Q), Station Records Management and Retention Program, and Site Engineering Instruction (SEI) 5.4, Records Management Process (draft) for Engineering and Construction Department.

5.3.3 Program Implementation

The records selected for review were primarily the M&TE records discussed in paragraph 4.0. The inspector also visited the Hope Creek Operations TDR, Nuclear Department Records trailer, and the Engineering and Construction Department for construction phase records.

The custodians of the records were able to retrieve, and show accountability of records. They were also knowledgeable of the requirements for indexing, retention periods, filing, and the replacement and disposition of obsolete records and hard copies that could not be filmed. The records were stored in approved cabinets and filed in an orderly manner. The records after microfilming are sent to Boyers, Pennsylvania, and construction records are sent to Iron Mountain, New York, for permanent storage.

The Nuclear Department will be taking over the filming functions of the Hope Creek Operations and the 16mm roll film process from the Engineering and Construction Department in August, 1985. The Nuclear Department is using the Storage and Information Retrieval System (STAIRS) for its Records Management System. Engineering and Construction Department is using Computer Assisted Record Management System (CARMS). The licensee is integrating CARMS into the STAIRS.

5.4 Findings

Engineering and Construction Department storage facilities are adequate to control the orderly transfer of records. Nuclear Department, however, acknowledged the inspector's concerns that their temporary record storage area in a trailer is inadequate to accommodate Hope Creek Operations, Salem 1 & 2 Operations, and Engineering and Construction Department filming functions. The licensee management stated that this matter will receive immediate attention.

No violations were identified.

5.5 QA/QC Interface

The records reviewed by the Inspector indicated adequate QA/QC coverage where applicable. During the past two years, two site QA audits were conducted in the area of Documentation and Records Controls. No problems/concerns were identified. In addition, the Nuclear QA group completed one audit in 1984 and is in the process of drafting the results of a second audit conducted in 1985. The Nuclear Department audits did not indicate any problems/concerns.

6. Procurement Control

6.1 References/Requirement

- 10 CFR 50, Appendix B, Criteria IV, VII and VIII
- Final Safety Analysis Report (FSAR) Sections 3.2 and 17.2
- ANSI N45.2.13-1976, Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plant
- ANSI N45.2-1977, Quality Assurance Requirements
- Regulatory Guide 1.123, Quality Assurance Requirements for Control of Items and Services for Nuclear Power Plants, Rev. 1
- PSE&G Corporate Procurement Policy and Procedure Manual
- PSE&G Nuclear Procurement and Material Control Procedure

6.2 Program Review

The inspector reviewed the procurement control programs and determined that the Hope Creek Generating Station (HCGS) has established administrative controls for:

- The identification of items purchased; identification of tests and/or special instructions, technical requirements and documentation to certify the item; assurance that the contractor/supplier has implemented a QA program consistent with 10 CFR 50, Appendix B, and including the provision for reportability per 10 CFR 21.
- Initiation of procurement documents; review and approval of specifications differing from the original design documents; review and approval of procurements, including changes thereto; and the designation of quality classification of procured items.

- Evaluation and approval of bidders/suppliers, including review/update of the approved suppliers list; right of access to suppliers' facilities and records; and maintenance of records of suppliers' qualifications and audits.

The inspector reviewed and found the following HCGS administrative controls procedures to be adequate for their intended purpose:

- SA-AP.ZZ-19(Q), Station Material Procurement and Control Program, Rev. 0
- SA-AP.ZZ-14(Q), Station Personnel Qualification and Training, Rev. 1
- PSE&G Nuclear Procurement and Material Control (NPMC) Manual M11-P-220, Process MOIC, Rev. 0
- NPMC M11-P-237, Activate Spare Parts Stock Codes, Rev. 0
- NPMC M11-P-240, Process Receiving Data, Rev. 0
- NPMC M11-P-245, Process Stock Issue Ticket, Rev. 1
- NPMC M11-P-246, Reorder for Inventory MMS Items, Rev. 0
- NPMC M11-P-247, Reorder for Inventory Spare Parts Items, Rev. 0
- NPMC M11-P-260, Process Transfer of Material, Rev. 0
- NPMC M11-P-310, Process Purchasing Requirements, Rev. 0
- NPMC M11-P-410, Receive Material, Rev. 1
- NPMC M11-P-480, Corrective Action - Incorrect Classification of Folio Items, Rev. 0
- GM9 QAP 3-1, Procurement Document Review, Rev. 4
- GM9 QAP 3-1.1, NQA Verification of Item Classification, Rev. 1
- GM9 QAP 3-1.2, Procurement of Materials from Other Utilities, Rev. 0
- GM9 QAP 3-2, Supplier Evaluation/Approval, Rev. 2
- GM9 QAP 3-3, Supplier Surveillance, Rev. 2
- GM9 QAP 3-5, Joint Utilities Supplier Audits, Rev. 0
- GM9 QAP 3-5, Supplier Audits, Rev. 1

- GM9 QAP 8-1, Nuclear Quality Assurance Record Control Program, Rev. 0
- Standard Specification Q-01, Quality Requirements for Suppliers, Rev. 2

6.3 Program Implementation

The inspector reviewed the procurement activities and held discussions with the Manager, Nuclear Procurement and Material Control (NPMC) and his staff. The retention of items from the canceled HCGS Unit-2 was also reviewed. Station Procedure SA-AP.ZZ-19(Q), Station Material Procurement and Control Program, initiates a Material Order/Item classification (MOIC) for procurement of all material and services at HCGS. Several station departments are involved in processing of an MOIC. The Site Engineering reviews the specifications to ensure that all appropriate codes, standards, regulatory requirements and FSAR commitments are stipulated. Site Engineering classifies the components, and approves changes to MOIC and processes Design Change Requests (DCRs) when replacement parts are no longer available commercially. Nuclear Quality Assurance reviews MOIC, assigns quality provisions, conducts material receipt inspection, and reviews and approves prepared requisitions. The Nuclear Procurement and Material Control (NPMC) reviews MOIC for its completeness, approves and resolves all outstanding concerns identified during procurement processing. It also processes MOIC for request for quotations. The originating department carries responsibilities to disposition all deviations and to provide revised ordering information to the purchasing department. NPMC also prepares material requisition, issues folio number and forwards approved packages to the "NQA - Supplier Control" for review and approval. The NQA verifies supplier with approved quality system (SWAQS), as applicable to HCGS procurement initiation, in accordance with the evaluated supplier's list (ESL). On its approval the NPMC issues purchase order. Procurement of contractor services is conducted in accordance with the applicable administrative, operation, and maintenance procedures. The initiating department supervisor provides vendor (contractor) data which also assist to maintain an in-house vendor service record (VSR). The process also provides for review and evaluation of Contractor Personnel Qualification to comply with the requirements of SA-AP.ZZ-014(Q).

The classification of items based on the Quality Group Classification categorized as Groups A, B, C, D, D+ and N. The Quality Assurance requirement per 10 CFR 50, Appendix B for ASME items are categorized as A, Qs, Qsh, F and R. The Station Procedure SA-AP.ZZ-019 (Q) outlines these classifications in detail and they are based on the criteria used for developing the plant Master Equipment List (MEL). PSE&G has implemented the Nuclear Procurement and Material Control Program for procurement of materials and services; material management;

disposition of quality action request² and deficiency report for non-conforming materials; vendor manual and technical documentation review and update; and upgrading spare parts data system.

The inspector reviewed the following purchase orders and determined that they complied with requirements of the applicable procedures of paragraph 6.2:

- PO 942951, Replacement Cells for Batteries
- PO 938172, O-Rings
- PO 081927, Union/T Stainless Steel
- PO 938159, Hydraulic Snubbers/Pins
- PO 938080, Spare Parts for Anchor Darling Gate Valves
- PO 938171, Spare Parts for Crosby Relief Valves
- PO 938896, Raychem Sleeves
- PO 938367, Pressure Transmitter
- PO 934857, Pressure Transmitter
- PO 935724, ASCO Solenoid Valve
- PO 933426, ASCO Solenoid Valve
- PO 931478, Gasket

The inspector also reviewed the procurement package for the following material retained from the canceled HCGS Unit 2 for use at HCGS Unit 1 (i.e., HCGS):

- PO 52326, Rack, Card File for Rosemount Trip Unit
- PO 54620, Card Identity
- PO 56267, Power Supply Unit
- PO 54668, Trip Unit
- PO 56218, Cradle for Centrifugal Pump
- PO 56315, Trip Unit Modules
- PO 54602, Wire
- PO 54545, Board Component

The above samples were comprised of safety-related, non-safety-related with QA provision, commercial catalog items, and the sole source items. A typical package contained an MOIC, Supplier Requirement (document QAF-8, QAF-19, Procurement Specification,) Certificate of Compliance, Receiving Inspection Checklist, R&I Records, and Test Data and Invoice. The quality assurance requirements and reportability per 10 CFR 21 were incorporated in the purchase specifications. The Procurement documentation was complete and adequate.

6.4 QA/QC Interface

GM9 QAP 3-1, Procurement Document Review provides for special inspection requirements, e.g., coating with preservatives, environmental integrity and cleanliness as applicable to HCGS. Accordingly, all Q-listed ASTM/ASME materials are subject to verification testing by an independent testing facility. QA Procurement Control conducts source surveillance; maintains a tracking system of Q-Listed ASTM/ASME materials; reviews MRRR (material request receiving requisition) and Purchase Orders; and Contracts. Suppliers evaluation and approval for procurement of materials, equipment and services are conducted in accordance with GM9 QAP 3-2. PSE&G QA conducts supplier quality program reevaluation on an annual basis for each active supplier, product or services based on the importance of such items and their impact on public health and safety. PSE&G updates Supplier With Acceptable Quality System (SWAQS)-list every 3 months. QA also performs supplier surveillance and documents the results of the surveillance activities and initiates QAR or DR for nonconformances in accordance with GM9 QAP 3-3. To determine the effectiveness of the suppliers overall quality program QA conducts supplier audit and in-depth investigation to establish compliance to QA Program requirements, follows-up implementation of required corrective action and verifies training, certification and qualification of vendor personnel performing quality control activities.

6.5 Findings

No violations were identified.

7. Receipt, Storage and Handling of Equipment and Materials

7.1 References/Requirements

- 10 CFR 50, Appendix B, Criteria VII, VIII, XIII, XV and XVI
- Final Safety Analysis Report (FSAR) Sections 17.1 and 17.2
- ANSI N45.2-1971, Quality Assurance Requirements
- ANSI N45.2-2-1972, Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants

- ANSI N45.2.13-1976, Quality Assurance for the Procurement of Items and Services
- Regulatory Guide 1.38, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants

7.2 Program Review

The inspector reviewed HCGS program for receipt, storage and handling of safety-related equipment and materials and determined that the program complied with the requirements of the references in paragraph 7.1. The HCGS has established administrative controls for:

- Identification and examination of materials, equipment and components in conformance with requirements specified in original procurement documents
- Conduct of receiving inspection on all incoming safety-related materials, components and equipment including issued items being returned to storage
- Identification of materials, components and equipment requiring a certification of quality for acceptance
- Control and disposition of received items, including tagging/ marking for storage, holding, or release for immediate use
- Disposition of nonconforming items, including marking and segregation, evaluation and documentation
- Prohibiting inadvertent installation or use of nonconforming items
- Conditional release of nonconforming items, including technical justification, documentation and authority for release
- Proper storage levels and appropriate environmental conditions
- Specification of storage controls, including access, identification, arrangement, covering and preservation
- Periodic inspection of storage areas
- Preventive, maintenance and care of items in storage, including shelf-life controls

The inspector reviewed the following HCGS administrative control procedures:

- SA-AP.ZZ-15(Q), Station Safety Tagging Program, Rev. 2
- SA-AP.ZZ-19(Q), Station Material Procurement and Control Program, Rev. 0
- SA-AP.ZZ-21(Q), Station Cleanliness Program, Rev. 0
- SA-AP.ZZ-31(Q), Station Housekeeping Program, Rev. 2
- NPMC M11-P-490, Shelf-Life Program, Rev. 0
- NPMC M11-P-495, Verification of Tags, Rev. 0
- NPMC M11-P-500, Classification and Storage of Materials, Rev. 0
- NPMC M11-P-515, Lifting and Rigging Requirements, Rev. 0
- NPMC M11-P-545, Storage and Issuance of Weld Rod and Weld Filler Material, Rev. 0
- NPMC M11-P-550, Control of Calibrated Measuring and Test Equipment, Rev. 2
- NPMC M11-P-600, Issue Material from Stock, Rev. 1
- GM9 QAP4-1, Receiving Inspection, Rev. 4
- GM9 QAP4-2 Receiving Inspection Nonconformances, Rev. 1
- GM9 QAP-4-3, Monitoring of Material Control, Rev. 1
- GM9 QAP-4-3.1, Control of Retained Equipment, Rev. 0
- GM9 QAP 8-1, NQA Quality Assurance Record Control Program, Rev. 0

The above procedures provided adequate control for the intended activities.

7.3 Program Implementation

The inspector toured the central receiving inspection area, TB-2 Spare Parts Warehouse and in-plant storage area, and discussed with the warehouse supervisor and storekeepers regarding receipt, storage, and handling of materials and equipment as well as availability of resources and manpower to implement these programs at HCGS. He randomly selected items discussed in paragraph 6.3 and determined that:

- Receipt inspections were conducted in accordance with the administrative controls
- Disposition of items was in accordance with program requirements
- Tagging/marking allowed the tracking of items back to procurement documents, receipt documents, and quality certification documents
- Preventive maintenance was performed, where necessary, at the required intervals
- Documentation of nonconforming items was transmitted to the appropriate organization for proper disposition
- Equipment shelf-life program was established and implemented

HCGS has instituted controlled personnel access to the store rooms. Although the storage facility is adequate, the safety-related items are not segregated from non-safety-related items. Color coding has been implemented to designate safety-related, safety-related with QA provision, sole source items, commercial catalog items, and non-safety-related items. The inspector noted that hazardous materials, chemicals and paints were separately stored. Also, in-plant storeroom has provision for a level A storage area for electronics and other temperature and humidity sensitive items. Calibrations of filler material ovens were current. Issuance of the stores items was conducted in accordance with the administrative control procedures. A computer generated perpetual item list provides pertinent data such as purchase order, equipment type, vendor, equipment shelf-life, safety category, inventory status, and location. Equipment shelf-life program has been implemented in accordance with the corporate procedure M11-P-490. A computer generated equipment shelf-life list provides monthly updates. Preventive maintenance for the equipment is scheduled and performed by the maintenance department. The inspector noted an isolated case of omission of shelf-life program for a pressure transmitter sampled in paragraph 6.3. The NPMC personnel have taken prudent action to rectify this isolated incident.

PSE&G NPMC instruction M11-P-240 has established the requirement for the receipt of material at HCGS, and provided guidelines for initiation of QAR, DR, material hold, and resolution of all nonconformances. The inspector noticed that the housekeeping, lighting, ventilation, and fire protection in the HCGS warehouse were adequate and reflected the intent of the station procedure SA-AP.ZZ-31(Q), corporate instruction M11-P-495, and ANSI N45.2.2.

7.4 QA/QC Interface

The Nuclear QA group and the Station QA group perform receiving inspections activities. In addition to visual inspection to verify physical damage, receiving inspection ascertains the physical dimension, identification and traceability to the required documentation, by utilizing QAF-18, checklist and QAF-19 supplier documentation requirements. The QA Engineer initiates a receiving nonconformance report (RNR) to address nonconformances identified during the receiving inspection. The discrepant items are kept in the QA hold area with proper hold tags. These items are dispositioned after a detailed engineering evaluation. GM9 QAP-4-2 has delineated the responsibility for administration of receiving inspection nonconformances and their resolution. Nuclear QA Receiving Control monitors activities associated with the receipt, handling, storage and issue of materials and equipment. The program monitoring ensures that storeroom personnel properly implement applicable procedures and verify that storage classifications are designated during receipt activities; proper tagging/marking is incorporated; proper material control forms are used; and shelf-life and preventive maintenance programs are instituted. The monitoring program also assures the material/equipment handling devices are calibrated, tested, and are capable of handling the designated load. It also assures the control of access to the storage and maintenance of proper storage conditions.

Equipment originally purchased, received and stored for the use in the canceled HCGS Unit 2 has been retained and dedicated for use as spare/replacement for HCGS Unit 1 (HCGS). PSE&G NQA procedure GM9-QAP 4-3.1 delineates the control of this retained equipment. Prior to release of this equipment, the NQA engineer reviews and approves MOIC per requirements of GM9-QAP 3-1. The equipment, identification, traceability and documentation are verified per QAF-8, thus, QA/QC overview for receipt, storage and handling of material is considered adequate.

7.5. Findings

No violations were identified.

8. Quality Assurance/Quality Control Administration and Overview

8.1 References/Requirements

- Final Safety Analysis Report (FSAR), Sections 13, 14, 16 and 17.2
- Regulatory Guide (RG) 1.33, Rev. 2, Quality Assurance Program Requirements (Operations)
- ANSI N18.7-1976, Administrative Controls and Quality Assurance Program Requirements for the Operational Phase of Nuclear Power Plants

- RG 1.144, Rev. 1, Auditing of Quality Assurance Programs for Nuclear Power Plants
- ANSI N45.2.12-1977, Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants
- RG 1.146, Rev. 0, Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants
- ANSI N45.2.23-1978, Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants
- RG 1.58, Rev. 0, Qualifications of Nuclear Power Plant Inspection, Examination and Testing Personnel
- ANSI N45.2.6-1973, Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants
- SNT-TC-1A and Supplements, Recommended Practice for Nondestructive Testing Personnel Qualification and Certification

8.2 Organization and Staffing

The transition from two quality assurance departments into one consolidated department is in its final phase. Published organization charts show four division managers reporting to a General Manager of QA. These divisions are Engineering and Procurement, Program and Audits, and two Station QA Divisions (Hope Creek and Salem). Not yet published charts depicting lower tier organizational grouping and assignments were reviewed and discussed with managers and the General Manager of QA. The consolidated Nuclear QA Department (NQA) will contain approximately 115 PSE&G employees and initially retain contracted personnel until construction completion and pre-operational/startup testing activities are successfully completed. Personnel evaluations are currently ongoing so as to identify supplementary training needs for Engineering and Construction QA personnel that are to be assimilated into NQA. Those individuals requiring systems and simulator training have received or will receive such training at PSE&G's own training facility.

The education, experience and qualifications of five individuals, selected for lead/supervisory assignments were reviewed. These individuals are adequately qualified for their future assignments.

8.3 Program Review

Quality assurance program documents were reviewed and determined that the following administrative controls have been established for the QA/QC overview effort, as appropriate:

- Independence, qualification and training of QA/QC personnel
- Documentation and review of corrective actions
- Inspection requirements and acceptance criteria
- Audit program scope
- Audit follow-up and re-audit
- Planning and conducting audits
- Long range audit scheduling
- Audit report distribution and required response
- Periodic review of the audit program
- Surveillance of ongoing activities
- Vendor control and surveillance

The following documents/procedures were reviewed.

- Nuclear Quality Assurance Department Manual GM9-1
- Station Quality Procedure (SQP) 1-6, Revision 0, Procedure Review
- SQP 5-1, Revision 0, Surveillance of Station Activities
- SQP 5-2, Revision 0, Verification Program
- SQP 5-5, Revision 0, Control of Nonconformances
- SQP 7-1, Revision 0, Corrective Action
- Nuclear QA Programs and Audits Manual, Volume M-29
- 1985/86 Audit Schedule, Revision 5

8.4 Audits

Audits were reviewed and verified that they were conducted in accordance with ANSI N45.2.12 requirements and or licensee commitments including the following:

- In accordance with a written checklist covering the scoped audit area
- By a qualified/trained person independent of the authority over the area audited

- Identified deficiencies were documented and reviewed
- Corrective action and follow-up were adequate and timely
- Audit frequencies and general audit conduct was in accordance with the established schedule and procedures

The following audits were reviewed:

- NM-85-010, Procurement and Material Control
- NM-85-012, Site Maintenance
- HC-84-050, Hope Creek Operational Readiness
- NH-85-017, Operational Readiness Re-Audit

The latter two audits were exceptionally comprehensive. Discussions with the auditors involved indicated that they and their managers had confidence in the audit report conclusions that the QA Program was ready for the operations phase of the plant.

8.5 QA Surveillance

The quarterly schedule (July-September, 1985) reflects those areas specified in NQA Manual GM9-1 to be surveilled by QA. Active areas are being surveilled monthly and results are documented in a narrative report rather than using checkoff lists. Current staffing includes a supervisor and three QA engineers. The one engineer without operating experience or background has recently completed an 80 hour BWR systems course and received two weeks simulator training.

8.6 Vendor Control/Surveillance

The commodity code, status classification, responsible QA Engineer, past three years identified deficiencies, and previous evaluation data are the types of information entered into a computerized data base, ADP, for each supplier/vendor. This quality history is evaluated annually and facility visits are scheduled on a priority based on history and the need for augmented QA attention.

ADP information was used to identify vendors with poor quality performance. Eight vendors were selected for in-depth reviews of their quality histories. The decisions made about these vendors by QA were discussed with the group supervisor, who had performed such an evaluation during the first quarter of this year. Six of the selected vendors appeared on the supervisors' evaluation list. Five of the vendors on the supervisor's list were scheduled for on-site audits/surveillances and two were removed from the Evaluated Supplier List. The decisions made by QA with respect to the vendors were reasonable and valid.

8.7 Quality Trending Analysis

A Trending of quality elements has been established and the program is in the process of being refined. Additional personnel are scheduled to be assigned to this effort. Findings by NRC, INPO and PSE&G QA are included. Deficiency Reports (DR), which are the least significant type of discrepancy are tracked as to numbers issued, average time to close and the number still open. Eighteen root causes for deficiencies have been identified and coded into the system. The quarterly report is issued during the first month of the successive calendar quarters and contains graphics in addition to numerical listings. There is no qualitative factor (weight as to significance) at present. Some experimentation in this direction has been attempted. However, INPOs "Performed Objectives and Criteria for Plant Evaluation", are used for Environmental, Fire Protection and Security areas. PSE&G QA has developed similar criteria for such use.

8.8 Findings

It was concluded that the consolidated QA Department is prepared to implement their program and assigned responsibilities for the operational phase of the plant.

No violations were identified.

9. Station Operations Review Committee

The Station Operations Review Committee (SORC), commonly known as the Onsite Operations Review Committee, has been established and is executing its assigned responsibilities. Procedure SA-AP.ZZ-004(Q), SORC, Revision 2 provides the details of administrative control. A committee meeting was attended and it was determined that SORC is functioning in the classical committee fashion. However, the transition to the improved technical review process, outlined in a recent revision to the TS and in the latest procedure revision, has not yet been fully implemented.

PSE&G management was informed that the SORC would be reviewed during future NRC inspections to verify that the activities/responsibilities were being conducted in the prescribed fashion prior to issuance of the Operating License (OL). Pending this verification this item is unresolved (354/85-33-01).

10. Safety Review Group

The Safety Review Group, commonly known as the Offsite Review Committee, will consist of eight full time individuals with four nominally assigned to each of PSE&Gs two nuclear facilities. The Manager-Nuclear Safety Review stated there would be assistance and interaction between the two sub groups. The Salem group began to function officially during the inspection. However, the four individuals for Hope Creek have not yet

been selected, but are expected to be functioning by October, 1985. Additionally, a few procedures are still in draft. PSE&G management was informed that the SRG would be reviewed during a future NRC inspection to verify it is functioning in accordance with established procedures prior to issuance of the OL. Pending this verification this item is unresolved (354/85-33-02).

11. Onsite Independent Safety Review Group (ISRG)

This group has not yet been staffed, but it will be similar to that for Salem Station. Also, procedures to be developed will be like those for Salem. The Hope Creek group is to be made functional during the next quarter.

PSE&G management was informed that the ISRG would be reviewed during a future inspection to verify that it is functioning in accordance with established procedures prior to issuance of the OL. Pending this verification this item is unresolved (354/85-33-03).

12. Licensee Actions on Previous Inspection Findings :

(Closed) Unresolved Item (50-354/84-15-01): Five pipe sections were observed to be not covered. One limitorque mechanism was partially covered.

The licensee had evaluated the problem and took actions to cover the identified pipe sections and limitorque mechanism. Additionally, the A-E (Bechtel) issued non-manual bulletin No. 219 and manual bulletin No. 36 emphasizing station housekeeping and cleanliness. The Project Superintendent (Bechtel) in his daily noon meeting discusses housekeeping concerns regularly. In addition, a surveillance team has been given a full time assignment of surveillance and monitoring, and reporting of noncompliances pertaining to housekeeping and cleanliness at HCGS, to avoid future occurrences of the concerns identified in the unresolved item.

Based on the above, the item is closed.

(Closed) Violation (50-354/85-01-01): Failure to establish procedures for preventive maintenance and internal examination of heat exchangers.

Static water was found in the Emergency Diesel Generator jacket water heat exchanger AE-105. HCGS investigated and determined that demineralized water leaked through an isolation valve during hydrostatic test of a piping system. Visual inspection by Bechtel Field Engineering and a representative of the manufacturer (Colt Industries) determined that the light surface corrosion and accumulated deposits had not degraded the integrity of the heat exchanger.

As a result of this investigation, purging procedures have been established for tubed stainless steel heat exchanger using either a dry air purge with desiccant or nitrogen where access is restricted for desiccant placement.

Based on the above, the item is closed.

(Closed) (50-354/85-05-01) Violation: Lack of formal control and monitoring of flush temperature below 120°F. This violation cited HCGS for flushing 12 safety related systems while the system hangers were pinned and were without formal temperature control and monitoring. An investigation by HCGS personnel indicated that the system temperature had not exceeded 120°F. This meets the requirements of Specification P-410(Q), "Installation, Inspection, and Documentation of Pipe Support in Nuclear Industry." Actions taken to prevent recurrence of this problem were:

1. Startup General Test Procedure, GTP-1, "General Flushing and Cleaning Procedure," has been revised to include temperature monitoring requirements.
2. Startup Instruction, SI-41, "Flushing Constraints," will be followed in placing temperature monitoring devices on equipment and piping.

If a system temperature exceeds 120°F, the support system will be evaluated.

Based on the above, the item is closed.

(Closed) Violation (50-354/85-10-01): Cable trays in the cable spreading room were not protected from physical damage.

HCGS investigated and took immediate action to address this violation. The debris was removed and the affected cables were inspected for damage. The cables were found to be acceptable. Pursuant to this incident, the A-E (Bechtel) issued Jobsite Non-Manual Bulletin No. 219 and Manual Bulletin No. 36 to preclude recurrence. In high risk areas flame retardant coverings were placed over cable trays. The A-E has initiated surveillance program, with 10 electricians, to inspect work areas on a full time basis. Furthermore, the Project Superintendent (Bechtel), in his daily noon meeting, regularly stresses the importance of protecting electrical cables and trays from debris.

Based on the above, the item is closed.

(Closed) Unresolved Item (354/85-11-01): Vague instructions on Maintenance Action Cards (MACs) provided by Bechtel to Hope Creek Operations.

Bechtel and Hope Creek Operations met on April 18, 1985 to resolve the problem of vague instructions in the MACs. Consequently, now Bechtel supplies MACs with adequate instructions in a timely manner. Hope Creek Operations continues to review all the MACs from Bechtel and develops

their own MACs. When they do use a Bechtel "As is", the instructions are corrected as necessary. The inspector sampled 15 MACs including several Bechtel MACs which were corrected. The inspector concluded that the vague instructions problem has been resolved and that Hope Creek Operations will continue to review all MACs.

Based on the above, the item is closed.

13. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items or violations. Unresolved items are discussed in paragraphs 9, 10 and 11.

14. Management Meetings

Licensee management was informed of the scope and purpose of the inspection at the entrance interview on July 8, 1985. The status of the inspection was presented to licensee representatives during a meeting July 12, 1985. The findings of the inspection were discussed with licensee representatives during the course of the inspection and presented to licensee management at the July 18, 1985 exit interview (see paragraph 1 for attendees).

At no time during the inspection was written material provided to the licensee by the inspectors.