

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 85-34

Docket No. 50-354

License No. CPPR-120

Priority --

Category B

Licensee: Public Service Electric and Gas Company  
80 Park Plaza - 17C  
Newark, New Jersey 07101

Facility Name: Hope Creek Unit #1

Inspection At: Hancocks Bridge, New Jersey

Inspection Conducted: July 8 - 11, 1985

Inspector: C/H for C. Woodward  
C. H. Woodward, Reactor Engineer

8/20/85

date

Approved by: C. J. Anderson  
C. J. Anderson, Chief, PSS, DRS

8/20/85

date

Inspection Summary: Inspection July 8 - 11, 1985 (Report No. 50-354/85-34)

Areas Inspected: Routine unannounced inspection of safety related electrical systems and equipment. The inspection included verification of compliance with SER commitments documented in NUREG-1048 and follow-up of open items identified in previous inspections. This inspection required 34 hours on site by one region-based inspector.

Results: No violations or deviations were identified.

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## DETAILS

### 1.0 Key Persons Contacted

#### 1.1 Public Service Electric and Gas Company

R. Salveson, General Manager  
A. Giardino, Manager Quality Assurance  
\*S. La Bruna, Assistant General Manager  
A. Barnabei, Principal Quality Assurance Engineer  
J. Canter, Start-up Manager  
R. Donges, Lead Quality Assurance Engineer  
M. Metcalf, Quality Assurance Start-up Engineer

#### 1.2 Bechtel

D. Little, Project Superintendent  
N. Griffin, Project Facilities Engineer  
G. Moulton, Project Quality Assurance Engineer  
G. Goldsmith, Resident Engineer

#### 1.3 U. S. Nuclear Regulatory Commission

R. Blough, Senior Resident Inspector

\*All others at exit interview.

### 2.0 Facility Tour

The inspector observed work activities in progress, completed work and plant status in several areas during a general inspection of the site. The inspector examined work items for obvious defects of non-compliance with NRC requirements or licensee commitments. Particular note was taken regarding the presence of quality control inspectors and indications of quality control activities through visual evidence such as inspection records, material identifications, nonconformance and acceptance tags. In addition, the inspector interviewed craft and supervisory personnel encountered in the work area.

No deficiencies were identified.

### 3.0 Verification of Hope Creek SER Commitments

The licensee made commitments to perform supportive tests, analyses and implement certain procedures in NUREG-1048 the Safety Evaluation Report (SER).

The inspector reviewed a number of outstanding NUREG-1048 licensee commitments identified in the SER and performed inspections to verify licensee actions taken to meet these commitments as follows:

- (Closed) Inspection Item 85-14-3D from SER Section 9.5.4.2, which requires that prior to plant operation the licensee establish and have in place plant procedures to prevent inadvertent activation of the manual deluge valves to extinguish fire in the diesel generators fuel oil storage vaults in the event of fire and failure of the automatic CO2 system to extinguish the fire. The inspector discussed the training of fire brigade personnel with the licensee and reviewed the operator procedures for activation of the deluge valves as contained in Pre-Fire Plan Diesel Generator Area, M10-FRH-11-511. No deficiencies were identified. This item is closed.
- (Closed) Inspection Item 85-14-3E from SER Section 9.5.5, which requires that prior to plant startup the licensee shall implement procedures to manually transfer diesel generators cooling water from the normal Safety Auxiliary Cooling System (SACS) loop to the alternate SACS loop in the event of a loss of a pump in the normal loop. The inspector reviewed licensee procedure OP-AB.ZZ-124(Q) which covers this transfer. No deficiencies were identified. This item is closed.
- (Closed) Inspection Item 85-14-3F from SER Section 9.5.5, which requires that prior to plant startup the licensee shall implement procedures which direct personnel to monitor diesel generators lube oil and cooling water expansion tanks for leakage of oil into the water and/or water into the lube oil. The inspector reviewed licensee Emergency Diesel Generators Operation Procedure OP-SO.KJ-001(Q) which provides for monitoring these tank levels to detect leakage. No deficiencies were identified. This item is closed.
- (Closed) Inspection Item 85-14-3H from SER Section 9.5.7, which requires verification of licensee posting of diesel generators lube oil fill procedures. The inspector verified that each lube oil fill location is tagged with an etched micarta-type tag which provides direction to Emergency Diesel Generator Operation Procedure OP-SO.KJ-001(Q) for instructions and also provides a description of the type of oil to be used in the diesel engine. This item is closed.
- (Closed) Inspection Item 85-14-3J from SER Section 9.5.7, which requires the licensee to implement procedures for observing diesel generators rocker arm reservoir level. The inspector verified that licensee Emergency Diesel Generator Operations Procedure OP-SP.KJ-001(Q) provides for monitoring rocker arm reservoir oil level every 8 hours during engine operation and once a week during engine shutdown. This item is closed.
- (Closed) Inspection Item 85-14-3K from SER Section 9.5.7, which requires that the licensee implement procedures to prevent the entry of deleterious materials into the diesel generators oil system. The inspector verified that the licensee has written procedures for make-

up tank filling, fill lines are labelled and proper lubricating oil is specified, the oil fill line is equipped with a basket strainer, and the make-up tank is fitted with a capped, filtered, flame arrestor type vent. This item is closed.

#### 4.0 Previous Inspection Findings

- (Closed) Unresolved Item 84-21-04 on safety-related flow switches FSL-9384 C1, C3, G1 and G3 installation not in accordance with the P&ID and calculations not available for review. The inspector reviewed the licensee's corrected P&ID, flow calculations, and verified the actual flow switch installations. This item is closed.
- (Closed) Significant Construction Deficiency Item 83-00-16 on GE supplied ground break relays. Eight GE model TGSR-12 ground break relays installed in safety-related 480 volt unit substation 10B410, 10B420, 10B430, 10B440, 10B450, 10B460, 10B470, and 10B480 were supplied with a latent manufacturing defect in one of the component parts. The inspector reviewed the corrective actions taken which was to return the relays to the manufacturer who supplied new model TGSR-12Z replacement relays. The inspector reviewed the licensee quality control replacement documentation package and physically verified four of the replacement installed relays. There were no outstanding questions. This item is closed.
- (Closed) Significant Construction Deficiency Item 83-00-13 on Defective AKR-30 Circuit Breakers.

The inspector reviewed the failures history of the General Electric AKR-30 circuit breakers at the Hope Creek Nuclear Station. Major failures included extensive problems with a defective switch and an improperly heat treated part which resulted in failures of the circuit breakers to close properly upon command.

The licensee and GE initially rebuilt substantial numbers of these circuit breakers in a General Electric warehousing location. Because of continuing problems, all 244 AC and 91 DC AKR-30 circuit breakers were shipped to the GE Plainfield, Connecticut facility for remanufacture. These circuit breakers were returned to the licensee and each circuit breaker was functionally tested prior to installation.

The inspector reviewed the repair/rework, and the licensee inspection test program for the remanufactured circuit breakers, and completed test and inspection data.

Since the circuit breakers are used in both safety and non-safety related applications, the inspector verified that all AKR-30 circuit breakers are treated as safety related such that there is interchangeability of circuit breakers and parts.

Since re-installation, the licensee reports that there have been no significant failures in these circuit breakers. This item is closed.

- (Closed) Significant Construction Deficiency Item 84-00-17 Brown Boveri model 5HK circuit breakers arc suppression puffer piston connecting rods.

The inspector reviewed licensee inspection documents and actions taken to resolve this deficiency. All 5HK circuit breakers puffer piston rods and arc chutes had been examined for evidence of damage. Arc chutes and covers were replaced where damaged. Two cracked/defective piston rods were replaced. Licensee inspection procedure MD-PM.PB-001(Q) now requires the periodic inspection of the puffer piston rods. There were no outstanding questions. This item is closed.

- (Closed) Unresolved Item 84-21-03 on de-energized electrical equipment heaters for diesel generator alternators, core spray pump motors, and residual heat removal pump motors.

The inspector reviewed the licensee's findings, inspections made, corrective actions taken, and action/procedures implemented to prevent recurrence. The licensee had identified equipment in the power block that is considered in level "B" storage which no longer requires temporary heat and had also clearly specified 9 categories of motors, alternators and other electrical equipment which will continue to require temporary heat. This item is closed.

- (Closed) Unresolved Open Item 84-21-02 on a safety related cable bend exceeding the minimum acceptable bend radius.

The inspector verified licensee corrective actions taken, additional inspections conducted for evidence of other similar problems, and actions taken to preclude recurrence of the problem. This item is closed.

- (Closed) Unresolved Open Item 84-21-01 on unsupported safety related cable span exceeding 18-inches.

The inspector reviewed the licensee response and inspected the referenced cable in place. The licensee response and inspection confirmed that the cable did not exceed licensee specification requirements for 18-inches horizontal and 48-inches vertical unsupported cable length. The unsupported length was found to span 10-inches horizontal and 30-inches vertical. This item is closed.



- (Closed) Unresolved Item No. 84-21-05 on sealing requirements for unconnected instrumentation tubing and ports during installation. The inspector reviewed licensee procedure SWP/P-15, Rev 10 which now requires that all open ports be properly sealed during installation. This item is closed.
- (Closed) Unresolved Item 84-21-06 on a missing explosion proof lamp cover in ICD 411 battery room. The inspector found that at the time of the previous inspection the subject lamp was an improper fixture and was mechanically installed but not electrically connected. The proper lamp fixture has since been ordered and installed. The inspector verified the installation and inspected the lamp for installation of the explosion proof covers. There were no outstanding questions. This item is closed.

- (Closed) Unresolved Item 85-17-02 on licensee procedures to assure control of battery room doors.

The inspector reviewed the recently implemented PSE&G/Bechtel Plant Access Authorization Permit/Request Procedure - SWP/P-136, H-SDP-141. Personnel have been trained in the use of the procedure and access authorization authority has been assigned for five plant areas. The inspector verified that all battery room doors were closed and locked and that access could only be gained by proper authorization and key issue. This item is closed.

- (Closed) Unresolved Item 85-17-03 on proper notifications when battery test data is outside the acceptance criteria established in test procedures. Previous requirements were for verbal reports to the shift supervisor. In such instances there was no clear verification of the reports having been made.

The inspector reviewed the current written reporting requirements of MD-ST.PR-001(Q) and SA-AP.ZZ-020(Q) and found them acceptable. This item is closed.

- (Closed) Unresolved Item 85-17-04 on not recording battery float voltage on test data sheets. The inspector found that the subject battery was open circuited at the time and not on float. Therefore, there was no float voltage. The inspector also reviewed procedure MD-ST. PK-001(G), Revision 0, attachment 1 page 3 of 4 which now requires that all blanks on test data sheets be filled out as applicable or not applicable prior to QA sign off. This item is closed.
- (Closed) Unresolved Item 85-17-05 on the ambiguity of battery surveillance acceptance test criteria due to test procedural reference to draft technical specification criteria. The inspector reviewed current battery test procedures which now include the acceptance criteria within the procedure for each test. This item is closed.

- (Open) Potential long term problem with heating in voltage regulating transformers of Colt emergency diesel generators (part 21 report).

The inspector confirmed that the licensee and Colt personnel are planning instrumented temperature measurement tests within the voltage regulating equipment during a period of operation which is sufficiently long to permit stabilization of temperatures within the equipments. These tests had not been scheduled at the time of this inspection. This item is open pending NRC review of the test results. This is unresolved item 85-34-01.

#### 5.0 Unresolved Items

Unresolved items are matters about which more information was/is needed. Unresolved items are discussed in paragraphs 3 and 4 of this report.

#### 6.0 Exit Meeting

The inspector met with the licensee and construction representatives denoted in paragraph 1 at the conclusion of this inspection on July 11, 1985. The inspector summarized the scope, inspection findings and confirmed with the licensee that the documents reviewed did not contain any proprietary information. The licensee agreed that the inspection report may be placed in Public Document Rooms without prior licensee review for propriety information (10 CFR 2.790).

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