


UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF REACTOR REGULATION
DIVISION OF REACTOR INSPECTION AND SAFEGUARDS

Report No.: 50-410/88-201
Docket No.: 50-410
License No.: NPF-69
Licensee: Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212
Facility Name: Nine Mile Point Unit 2
Inspection At: Scriba, New York
Inspection Conducted: August 17-19, 1988

Inspectors:

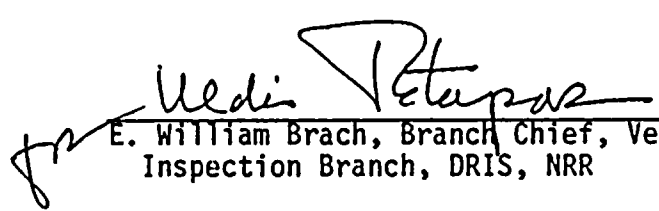

Jeffrey B. Jacobson, Operations Engineer,
Team Leader, NRR

10/6/88
Date


Thomas B. Silko, Nuclear Engineer, NRR

10/14/88
Date

Approved By:


E. William Brach, Branch Chief, Vendor
Inspection Branch, DRIS, NRR

10-19-88
Date



Inspection Summary: Inspection on August 17-19, 1988 (Inspection Report
Number 50-410/88-201)

Areas Inspected: Announced inspection to review procurement of safety related and non-safety-related equipment from NSSS, Inc. and the subsequent testing of several hundred molded case circuit breakers by Brown Boveri, Inc.

Results:

- (1) The test program developed by Brown Boveri, Inc. for the purpose of dedicating several hundred molded case circuit breakers for safety-related applications was determined to be inadequate.
- (2) Fifty-four control room panel meters procured safety-related from NSSS, Inc. were found to have inadequate documentation for use in safety-related applications.
- (3) One 16-inch globe valve procured from NSSS, Inc. was found to have adequate documentation to support its use in safety-related applications.
- (4) The circuit breaker test program in place for periodically testing installed molded case circuit breakers was found to be inadequate.



Details

1.0 Persons Contacted

1.1 Niagara Mohawk Power Company

*A. Pinter	Licensing Engineer
*S. Agarwal	Lead Licensing Engineer
*J. Willis	General Superintendent
*D. Weaver	Lead Materials Engineer
*G. Pace	Manager Materials Engineering
*C. Beckham	Manager QA Operations
*M. Dooley	QA Surveillance
*R. Kotchamp	Manager Materials Management
*H. Master	QA
*S. Glover	Electrical Engineer
*L. Illy	Lead EQ Engineer
*S. Doty	Unit Supervisor Electrical
*R. Abbat	Station Superintendent Unit 2
*N. Kabalwal	Engineer
S. Mattucci	Materials Engineering
J. Bunyon	Lead Electrical Engineer

1.2 New York State

*P. Eddy	Site Representative - PSC
*P. MacEwan	Site Representative - EG

1.3 U.S. Nuclear Regulatory Commission

*J. Jacobson	Lead Inspector
*T. Silko	Inspector
*W. Schmidt,	Resident Inspector

*Attended Exit Meeting.



2.0 Purpose

The purpose of this inspection was to review the procurement and subsequent activities relative to the dedication for safety-related application of several hundred molded case circuit breakers obtained from NSSS, Inc. Also reviewed were several procurements of safety-related material from NSSS, Inc.

3.0 Background

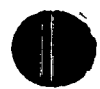
On August 8-10, 1988 the NRC performed an inspection at NSSS, Inc. in Jackson, Mississippi where it was discovered that NSSS, Inc. had sold several hundred molded case circuit breakers to Niagara Mohawk for use at the Nine Mile Point Unit 2 site. These circuit breakers were obtained by NSSS, Inc. from several of the six California companies described in NRC Information Notice 88-46, including Supplement 1 as having supplied potentially defective refurbished equipment. During the inspection of NSSS, Inc. it was also discovered that Niagara Mohawk intended to send the subject breakers to Brown Boveri, Inc. for testing to allow their use in safety-related applications. Additionally, NSSS, Inc. was found to have supplied 54 General Electric Company (GE) control room panel meters to Niagara Mohawk under a safety-related purchase order. These meters were said to have been obtained by NSSS, Inc. from GE as part of a bulk commercial purchase and were not certified by GE as being acceptable for safety related applications. A 16-inch globe valve was also supplied to Niagara Mohawk from NSSS, Inc. via another safety related order.

4.0 Molded Case Breakers Supplied by NSSS, Inc.

Of the circuit breakers procured from NSSS, Inc., approximately 475 were sent to Brown Boveri, Inc. for testing to establish acceptability for their use in safety-related applications. These breakers were tested by Brown Boveri, Inc. as described in their test report 35-56204FB dated January 19, 1988. The program consisted of a series of four tests: a 200 percent rated current test, a 135 percent rated current test, a 100 percent rated current test, and a dielectric test at 2200 volts. All breakers were subjected to these four tests.

Of the approximately 475 breakers tested 247 passed all 4 tests. In addition to the 4 tests previously described an instantaneous trip test was conducted on 35 of the type HE breakers. None of the type HE breakers tested passed the acceptance criteria of the test. Specifically, the breakers generally all tripped when current in the instantaneous range was applied, however, the current values and trip times measured indicated the time-current curve for these breakers had apparently shifted by a factor of two to the right (i.e., it took twice as much current to trip at the time specified by the curve).

Due to the large number of failures in the initial testing stages, the fact that none of the breakers could meet the manufacturers published



time-current curves, and the fact that no interrupting tests were performed, none of the tested or untested breakers can currently be deemed acceptable for safety-related applications.

Niagara Mohawk agreed not to install any of the subject circuit breakers in safety-related applications until the problems brought forth by the NRC inspector can be adequately analyzed and resolved.

5.0 G.E. Meters

The inspector reviewed documentation relative to General Physics (an agent for Niagara Mohawk) purchase of 54 GE 180 panel meters from NSSS, Inc. under Purchase Order GP100463. The meters had been procured from NSSS, Inc. as safety-related equipment and were certified by NSSS, Inc. as meeting the purchase order requirements. During the NRC inspection at NSSS, Inc. it was discovered that the NSSS, Inc. certification was based upon the fact that the meters, which were said to have been obtained by NSSS, Inc. from GE under commercial (nonsafety-related) purchase order GEN 785, were affixed with GE stickers delineating individual serial numbers and indicating that they were safety-related material. No certification as to the meters performance or acceptability had been given by GE.

Upon informing Niagara Mohawk of these circumstances they agreed that NSSS, Inc. did not have an acceptable basis for dedicating these meters because NSSS, Inc. did not performed any testing or analysis which confirmed the meters performance characteristics. Niagara Mohawk nonconformance Report Number 5-88-0110 was written to put the subject meters on hold until an adequate qualification basis can be obtained.

6.0 Anchor Darling Globe Valve

The inspector reviewed, under Purchase Order 63792, the purchase of one 16", 300 lb. rated, Carbon Steel Anchor Darling globe valve supplied from NSSS, Inc., of Jackson, Mississippi. Although the valve was not purchased from the original supplier, the purchase order package contained documentation certifying each owner/caretaker and the corresponding QA program pertaining to the valve during the specified time period. The inspector noted that the "Bill of Material Purchase Requisition" portion of the P.O. required the above documentation and that upon arrival of the valve, a QC Receipt Inspection identified a lack of required documentation. Subsequent correspondence between NMPC and NSSS, Inc., supplied the required documentation prior to QC release of the valve. No deficiencies were identified.

7.0 Molded Case Circuit Breaker Testing

As part of the review of the molded case circuit breakers supplied to Niagara Mohawk from NSSS, Inc., the inspector asked if one of the breakers not sent to Brown Boveri, Inc. could be tested on site. Niagara Mohawk agreed and a breaker was withdrawn from spare parts and tested in accordance with NMP Unit 2 Procedure No N2-EPM-GEN-V582. This procedure is



used for periodic testing of molded case breakers installed in the plant. During this sample test, the NRC inspector noted some problems concerning the performance of safety-related circuit breaker testing at NMP Unit 2. Specifically, no acceptance criteria is given in Procedure N2-EPM-GEN-V582 for the Magnetic (Instantaneous) Trip Test. Paragraph 7.2.9.3 of this procedure states "the breaker shall trip instantaneously with no intentional delay." No criteria is given as to acceptable minimum or maximum currents or as to an acceptable maximum trip time. Additionally, the procedure requires setting the adjustable trip settings on applicable breakers to the minimum position for testing and then returning the setting to the as found position prior to installation into the plant. It was unclear as to whether the time-current curve being used for this test was based upon the settings in the minimum position. Also Niagara Mohawk could not indicate where the actual trip settings should be for any particular installation. The trip settings were stated as not being listed on any plant drawings and no general guidance was given for establishing the proper settings. The inadequacies identified in the reviewed procedure is considered an open item (88-201-01).

