

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

Northern States Power Company
Prairie Island Nuclear Generating
Station
Units 1 and 2

Docket Nos. 50-282; 50-306
Licenses No. DPR-42; DPR-60
EA 89-135

During an NRC inspection conducted on October 25 through November 4, 1988, violation(s) of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C, (1988) the Nuclear Regulatory Commission proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalty are set forth below:

- I. 10 CFR Part 50, Appendix B, Criterion III, requires in part, that measures be established for the selection and review for suitability of materials, parts, equipment, and processes that are essential to the safety-related functions of structures, systems and components.

Contrary to the above, as of October 25, 1988, the licensee failed to establish adequate measures for selection and review for suitability of application of items purchased commercial grade that are essential to the safety related functions of systems and components. The measures were inadequate in that the licensee failed to perform documented technical evaluations to identify attributes such as the components' safety functions and critical characteristics, verification of design and manufacturing/material changes, and receipt inspection requirements beyond, generally, a part number verification and check for physical damage and cleanliness. Consequently, the following commercial grade components of undetermined quality were installed in safety-related systems.

- A. Seven General Electric (GE) type THEF136050 molded case circuit breakers were installed in safety-related applications: two were used as supply breakers in the motor control center cells for two feedwater-to-steam generator motor operated isolation valves; four were used in station battery chargers 11, 12, 21 and 22; and one was used as the supply breaker to AC distribution panel 136 supplying power to the diesel cooling water pump 121.
- B. Kunkle relief valves (1/2 and 1-inch) were installed in the emergency diesel generator starting air system.
- C. A 30-amp circuit breaker purchased from the Westinghouse Electric Company was installed in the safety injection pump heat trace system.
- D. Composite rupture discs procured from BS&B Safety Systems/Simone Engineering were installed on the auxiliary feedwater pump turbine exhaust header.

- E. A 4-pole positive action switch procured from Foxboro Corporation was installed in the main control board as a test switch for the fuel channel T-hot input.
- F. A Square D Model 9012 TP GAW-6 pressure switch purchased from the John Henry Foster Company was installed in the diesel generator No. 1 starting air compressor.
- G. A 5400-microfarad capacitor procured from Solid Station Controls, Inc. was installed in the No. 21 safety-related inverter.
- H. A 2-pole, 100-amp circuit breaker procured from Westinghouse Electric Supply Company was installed in the No. 12 safety-related inverter.
- I. Foxboro Model 62H relays were installed in the flux tilt controllers.

This is a Severity Level III violation (Supplement I).
Civil Penalty - \$25,000

- II. 10 CFR Part 50, Appendix B, Criterion V, requires, in part, that activities affecting quality shall be accomplished in accordance with documented instructions, procedures, or drawings of a type appropriate to the circumstances. Administrative Control Directive 5ACD 3.7 requires, in part, that NRC Bulletins, NRC Notices, 10 CFR 21 Reports, and vendor supplied experience documents be reviewed to determine their applicability to plant design and function. If they are applicable, they shall be assessed to determine if corrective action is required, and the results of these assessments shall be documented on Form 536.

Contrary to the above, as of October 25, 1988, the review and assessment of the following NRC Notices and vendor supplied experience documents, an activity affecting quality, were not accomplished in accordance with Administrative Control Directive 5ACD 3.7:

- A. The licensee failed to perform an evaluation for applicability to Prairie Island of 17 Service Information Letters and Repair Service Information Issuances from the emergency diesel generator manufacturer, Colt Industries/Fairbanks Morse Engine Division, which had been received during the period April 22, 1971 through April 22, 1988.
- B. Westinghouse Technical Bulletin 85-18 on feedwater control valve accessories, NRC Notice 84-83 on "Station Battery Problems," Gamma-Metrics May 1988 10 CFR Part 21 notification concerning the excore neutron flux detectors, and NRC Notice 88-46 on "Licensee Report of Defective Refurbished Circuit Breakers," were not assessed for applicability to Prairie Island.

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, Northern States Power Company (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice. This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation; (2) the reasons for the violation if admitted; (3) the corrective steps that have been taken and the results achieved; (4) the corrective steps that will be taken to avoid further violations; and (5) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an order may be issued to show cause why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

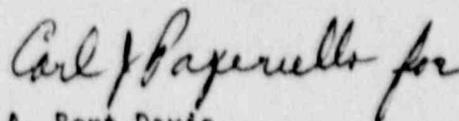
Within the same time as provided for the response required under 10 CFR 2.201, the Licensee may pay the civil penalty by letter to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, with a check, draft, or money order payable to the Treasurer of the United States in the amount [or the cumulative amount of the civil penalties if more than one civil penalty is proposed] of the civil penalty proposed above, or may protest imposition of the civil penalty in whole or in part by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within the time specified, an Order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violations listed in this Notice in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in this Notice; or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty, in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the factors addressed in Section V.B of 10 CFR Part 2, Appendix C, should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provision of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The responses to the Director, Office of Enforcement, noted above (Reply to a Notice of Violation, letter with payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Regional Administrator, Region III, U.S. Nuclear Regulatory Commission, 799 Roosevelt Road, Glen Ellyn, Illinois 60137 and a copy to the NRC Senior Resident Inspector at the Prairie Island Nuclear Generating Station.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Bert Davis
Regional Administrator

Dated at Glen Ellyn, Illinois
this 19th day of October 1989



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAR 10 1989

Docket Nos.: 50-282 and 50-306

Mr. C. E. Larsen, Vice President
Nuclear Generating
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

SUBJECT: INSPECTION OF THE VENDOR INTERFACE AND PROCUREMENT PROGRAMS
AT THE PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2
(INSPECTION REPORT NOS.: 50-282 & 306/88-201)

Dear Mr. Larsen:

This letter transmits the report of the inspection conducted October 25 through November 4, 1988, at the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2, by Messrs. R. P. McIntyre, R. L. Pettis, S. D. Alexander, and W. P. Haass of the NRC Vendor Inspection Branch (VIB). The inspection was related to plant site activities authorized by NRC License Numbers DPR-42 and DPR-60. At the conclusion of the inspection, our findings were discussed with Mr. Leon Eliason, General Manager, Nuclear Power Plants, and the members of your staff identified in Appendix A of the enclosed inspection report.

The purpose of the inspection was to review the implementation of the PINGP vendor interface program and the programs for the procurement of items for use in safety-related applications. The inspection team reviewed the documentation of specific vendor-related technical issues, including 10 CFR Part 21 notifications received at PINGP, and documentation concerning the procurement of both safety-related and commercial grade items, either installed in the plant or stored in the warehouse.

The results of the inspection indicate that weaknesses exist in the areas of procurement and dedication of commercial grade items and interfaces between Northern States Power Company (NSP)/PINGP and its vendors. During review of the procurement program and procedures, the inspection team identified significant deficiencies in the procurement of commercial grade items for eventual use in safety-related applications. The deficiencies included the failure to properly dedicate and provide documentation for commercial grade items procured for use in safety-related applications. PINGP failed to perform documented technical evaluations to identify attributes such as the components' safety functions and critical characteristics, verifications of design and manufacturing/material changes, and receipt inspection requirements beyond, generally, a part number verification and a check for physical damage and cleanliness. This resulted in the utilization of numerous components of indeterminate quality and qualification in safety-related applications.

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The review of the PINGP vendor interface program indicates the need for improvement, especially as related to the level and depth of the assessment of communications from the NRC and vendors and the evaluation and implementation of corrective action on service and maintenance recommendations received from Colt Industries/Fairbanks Morse Engine Division (FMED). PINGP failed to perform documented assessments of 17 Colt/FMED Service Information Letters (SIL's) for their applicability to the PINGP emergency diesel generators. One SIL, dated April 27, 1988, had not been received and therefore, had not been evaluated by PINGP.

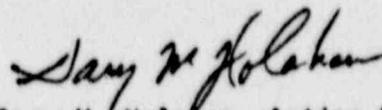
The review of the vendor interface program also identified a weakness in which certain vendor communications received at PINGP describing potential safety concerns were improperly and incompletely assessed for their applicability to PINGP. The inspectors also identified several assessments that lacked the necessary level of documentation to permit clear understanding of the disposition.

The inspection findings discussed above and in the enclosed report have been classified as Potential Enforcement Findings 50-282 & 306/88-201-01, 02, and 03 (Enclosure 1). These will be referred to the NRC Region III office for appropriate action.

We acknowledge the receipt of your letter, dated January 9, 1989, wherein you described your plans for reviewing a representative sample of installed commercial grade parts using a new dedication process based on EPRI-5652, and for the implementation of this process for all commercial grade parts purchased after November 4, 1988.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,



Gary M. Holahan, Acting Director
Division of Reactor Projects III/IV/V
and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Potential Enforcement Findings
2. Inspection Report Nos. 50-282 & 306/88-201
with Appendices A and B

POTENTIAL ENFORCEMENT FINDINGS

Northern States Power Company
Prairie Island Nuclear Generating Plant

Docket No.: 50-282 & 306
Licensee Nos.: DPR 42 & 60

During the period of October 25 through November 4, 1988, representatives of the NRC's Vendor Inspection Branch reviewed the vendor interface and procurement programs of the Prairie Island Nuclear Generating Plant (PINGP). As a result of the inspection, and in accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1986), the NRC inspection team identified the following potential enforcement findings:

A. Potential Enforcement Finding 50-282 & 306/88-201-01

The NRC inspectors identified numerous examples where the licensee installed commercial grade items (CGI's) in safety-related systems without adequately evaluating their suitability for use in such applications. CGI's were procured without performing technical evaluations to identify attributes such as the components'/items' safety functions and critical characteristics. No verification of design and manufacturing/material changes, and receipt inspection requirements beyond a part number verification and a check for physical damage and cleanliness was performed. This programmatic deficiency resulted in the installation of numerous components of indeterminate quality in safety-related systems.

The examples identified by the inspectors are listed in Section I.B.2 of the inspection report.

B. Potential Enforcement Finding 50-282 & 306/88-201-02

The NRC inspectors determined that the licensee failed to comply with PINGP Procedure 5ACD3.7, "Operating Experience Assessment," for the evaluation and implementation of recommended actions given in 17 Service Information Letters (SIL's) received from the emergency diesel generator (EDG) manufacturer, Colt Industries/Fairbanks Morse Engine Division (FMED). The SIL's were not evaluated properly or in a timely manner for their applicability to the PINGP. Furthermore, appropriate pen-and-ink changes to the governing maintenance and operation manuals for the D1 and D2 EDG's were not made.

SIL A-17, dated April 22, 1988, was not received by the licensee and thus the recommended SIL modifications were not made to the D1 and D2 EDG's.

C. Potential Enforcement Finding 50-282 & 306/88-201-03

The NRC inspectors identified several NRC and vendor communications describing potential safety concerns that were received at PINGP, but were improperly and/or incompletely assessed for their applicability to PINGP. Also, the depth of the documented assessments in many cases was at a level that did not enable the inspectors to make a clear determination of the adequacy of disposition of the issue. The examples identified by the inspectors are listed in Section III.C. and III.E of the inspection report.

Mr. C. E. Larsen
Northern States Power Company

Prairie Island Nuclear Generating
Plant

cc:

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INSPECTION REPORT

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF REACTOR INSPECTION AND SAFEGUARDS

Report Nos.: 50-282/88-201; 50-306/88-201

Docket Nos.: 50-282; 50-306

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Facility Name: Prairie Island Nuclear Generating Plant
Units 1 and 2

Inspection At: Red Wing, Minnesota

Inspection Conducted: October 24 through November 4, 1988

Inspectors: Richard P. McIntyre
Richard P. McIntyre, Team Leader
Vendor Inspection Branch (VIB)

2/27/89
Date

- R. L. Pettis, Reactor Engineer, VIB
- S. D. Alexander, Equipment Qualification
and Test Engineer, VIB
- W. P. Haass, Senior Reactor Engineer, VIB

Consultant: P. R. Farron, Nuclear Energy Consultants, Inc.

Approved By: E. William Brach
E. William Brach, Chief
Vendor Inspection Branch
Division of Reactor Inspection and
Safeguards

3/1/89
Date

Inspection Summary

Inspection from October 24 through November 4, 1988 (Reports Nos. 50-282/88-201; 50-306/88-201)

Areas Inspected: A special announced inspection was conducted by the headquarters Vendor Inspection Branch to review the implementation of the licensee's vendor interface program and the program for the procurement of items for use in safety-related applications at the Prairie Island Nuclear Generating Plant (PINGP). The inspection team reviewed the documentation of specific vendor related technical issues including 10 CFR 21 notifications received at PINGP and the documentation concerning the procurement of safety significant items, including molded case circuit breakers.

Results:

I. PROCUREMENT

The NRC inspection team reviewed the current programs for the procurement of parts, components, and equipment to be used in safety-related applications at the PINGP. This review addressed the procedures that govern the procurement process, as well as the methods used to upgrade commercial grade items (CGI's) for use in safety-related applications. A program description and the results of a review of the PINGP procurement procedures are contained in Appendix B to this report. To evaluate the implementation of the program, the NRC inspectors reviewed selected PINGP procurements of items to be used in safety-related systems, procured both commercial grade and safety-related from approved suppliers having a 10 CFR Part 50, Appendix B, Quality Assurance (QA) Program.

A. Procurement Package Reviews-General Comments

To evaluate the procurement of replacement piece-parts, components, and equipment for use in safety-related systems, the inspectors reviewed a list of all procurement Quality Level A purchases made under the PINGP system during the 5 years preceding the inspection. Additionally, the inspectors reviewed maintenance work requests for safety-related systems to identify maintenance activities that required the use of replacement parts. From these reviews, the inspectors identified numerous components that had been installed in safety-related systems and those that had been placed in inventory for future use in safety-related applications. The inspectors then reviewed the specific component procurement record packages for these items. The review concentrated on the three key issues given below to determine if the component selection, procurement, receipt, and dedication process (CGI's only) were appropriate to the circumstances.

1. Were appropriate measures implemented to meet the 10 CFR Part 50, Appendix B, Criterion III requirements for selection and review for suitability of application of materials, parts, equipment and processes that are essential to the safety-related functions of systems, components and structures?

2. Were appropriate measures implemented to meet the 10 CFR Part 50, Appendix B, Criterion VII requirements for assuring that equipment conforms to the procurement documents with appropriate provisions to ensure that objective evidence of quality is furnished to the licensee and evidence produced by licensee actions, such as examination of products upon delivery, are maintained to document that the requirements and specifications are met?
3. Were the requirements of 10 CFR Part 21 imposed in procurement documents when required for manufacturers/suppliers to ensure as a minimum that nonconformances or failures to comply with requirements would be reported to the licensee so that the licensee could evaluate such deviations in accordance with section 21.21 of 10 CFR Part 21?

The NRC inspectors reviewed approximately 120 procurement packages to determine if each procurement was performed properly and to evaluate the overall effectiveness of the PINGP procurement program. Based on the review of these packages, the inspectors found instances of improper commercial grade dedications with inadequate or nonexistent supporting documentation (testing, analysis, or inspection data) to ensure the CGI's were suitable for the intended applications.

B. Procurement Package Review-Specific Examples of Procurements Intended for Safety-Related Applications

1. The following are examples of Quality Level A purchase orders (PO's) for which the PINGP failed to impose the requirements of 10 CFR Part 21 on the vendor. This was also a licensee identified violation and in accordance with 10 CFR Part 2, Appendix C, Section V.G, no violation will be issued as a result of licensee corrective actions taken. See Section II.B of the report for clarification of this issue.
 - a. PO E26131 - Terry Corporation for throttle valves for the AFW pump turbine
 - b. PO E19716 - Limitorque Corporation, actuators
 - c. PO E28767 - Limitorque Corporation, spare parts
 - d. PO D56510MQ - Foxboro Corporation, control equipment refurbishing services
 - e. PO D70038 - Henry Vogt Machine Company, gate valves for cooling water system
 - f. PO E12778 - Westinghouse Electric Corporation Company, Minneapolis, shunt trip assemblies
2. Examples of Quality Level A commercial grade procurements used in safety-related applications without adequate dedication

The following examples were identified by the inspectors and discussed with licensee representatives. The licensee was requested to address the operability of each item due to the fact that no documentation existed to verify suitability for application. The safety functions and critical characteristics were not identified or verified. During the inspection, the licensee addressed the operability of each item by performing a documented dedication using their Preliminary Procedure N1 AW1 6.1.9, "Commercial Grade Procurement," as a guideline. This rationale addressed the suitability of application for replacement items using the methods described in the procedure.

The inspectors reviewed the documented commercial grade application evaluation and dedication justification performed by the licensee during the inspection and determined that the identified CGI's in the plant appeared to be suitable for their intended applications. At the conclusion of the inspection, PINGP still required the receipt of certain paperwork from vendors to complete the dedication for the some of the items.

- a. PO D29849 - Kunkle relief valves (1/2 and 1 inch) were purchased "safety-related, QA1, off-the-shelf" from Campbell and Sevey, Inc., and installed in the emergency diesel generator (EDG) starting air system. Receipt inspection was limited to identification and marking, physical damage and cleanliness. No documentation existed that identified the safety functions and critical characteristics, or that would support their seismic qualification. The relief valves were tested to verify their pressure set-points and to check for seat leakage.
- b. PO D90497 - A 30-amp circuit breaker, purchased from the Westinghouse Electric Supply Company (WESCO), was installed in the safety injection pump heat trace system. No analysis or test, was performed to support the suitability of this item in a safety-related application. The licensee had classified this item as a "safety-related, off-the-shelf" procurement. Receipt inspection was limited to identification and markings, physical damage, and cleanliness.
- c. PO D43835 - Composite rupture discs were procured from BS&S B Safety Systems/Simone Engineering and installed on the AFW pump turbine exhaust header. The licensee classified this item as "safety-related, off-the-shelf." The receipt inspection performed was limited to the same level as in item a and b above, and did not include any dimensional or material checks.
- d. PO E56979 - Foxboro model 62H relays were procured QA Class 3, safety-related and were installed in the flux tilt controllers. No documented basis for acceptability existed, other than receipt inspections for identification

and marking, physical damage, and cleanliness. In this case, a post-installation test was performed in accordance with a PINGP procedure to test the replacement relay operation.

The licensee agreed to obtain a letter from Foxboro stating that the relay procured is identical in form, fit, and function to that of the original relay and that no process, design or material changes had been made that could affect this item's seismic qualification.

- e. PO D62665 - A four-pole positive action switch was procured from Foxboro Corporation as "QA 1, off-the-shelf" and installed in the main control board as a test switch for the fuel channel T-Hot input, without adequately evaluating its suitability for its intended safety-related application. Receipt inspection consisted of the same limited reviews as mentioned in the earlier examples.
- f. PO E30218 - A Square D model 9012 TP GAW-6 pressure switch for the Diesel Generator No. 1 starting air compressor was purchased from the John Henry Foster Company and received only limited receipt inspection. The switch was rigidly mounted to the skid in a modified configuration using normal bolting hardware and a unistrut channel as a base. No analysis was available to support the seismic qualification of the new configuration.
- g. PO D92147 - The licensee purchased a mounting kit (Part No. N0150RG) for a safety-related Foxboro pressure transmitter (Plant ID No. 1PT-430) installed on the pressurizer. The transmitter (Type N-E11 GM) was purchased separately on PO D27762MQ. The inspectors noted that no analysis or documentation existed to support the seismic qualification of the mounting bracket, which is safety-related, but procured by PINGP as commercial grade. However, Foxboro Parts List 008-548, dated November 1985, "N-E11 GM Electronic Gauge Pressure Transmitter for Nuclear Services Styles A and B," states, on page 4, that for the subject mounting kit, the provisions of 10 CFR 21 apply, but for the mounting bracket only. All other parts are considered commercial grade by Foxboro. This statement in the catalog appears to imply that the mounting bracket is manufactured under a quality assurance program and also meets the same seismic qualification as Foxboro's nuclear transmitter line. The licensee agreed to obtain a letter from Foxboro clarifying this point.
- h. PO D09391 - The licensee procured a 5400 microfarad commercial grade capacitor from Solid State Controls Inc., for use in the No. 21 inverter. Its suitability for its intended safety-related application was not adequately evaluated. Dedication was limited to receipt inspection

for cleanliness, identification and markings, and physical damage.

- i. PO D69649MQ - A 2-pole, 100-amp circuit breaker, procured from WESCO, was installed in the No. 12 inverter. Dedication of this commercial grade component was limited to a receipt inspection that verified identification markings were correct and checked for physical damage and cleanliness.
- j. PO QE35428 - Sixteen General Electric (GE) type THEF136050 molded case circuit breakers were ordered from Lakeland Engineering Equipment Company who, in turn, had them direct-shipped to PINGP from Bud Ferguson's Industrial Control and Supply Company. This example is discussed in detail in paragraph 5 below.

3. Molded Case Circuit Breakers

In light of the NRC's recent inspection findings regarding fraudulent and/or refurbished molded case circuit breakers (MCCB's), as promulgated in NRC Information Notice 88-46 and its Supplements 1 and 2, particular emphasis was placed on this area. The inspection of this area at PINGP concentrated on three facets of PINGP's practices regarding MCCB's:

- a. Evaluation of procurement procedures and their implementation to determine (1) the adequacy for assuring quality of replacement components and equipment for safety-related applications, and (2) the effectiveness of the process in identifying fraudulent material and preventing its use in the plant, especially in safety-related plant applications.
- b. Determination of the status of PINGP's current inventory of MCCB's in terms of traceability to the original manufacturer, their condition, and reviewing MCCB purchase and usage history over the last several years.
- c. Evaluation of PINGP's actions in response to Information Notice 88-46, its supplements and any other correspondence concerning fraudulent or refurbished MCCB's.

4. PINGP MCCB Inventory

The inspector reviewed a computer printout of PINGP's entire inventory of MCCB's in the on-site warehouse. This was compared to the actual shelf stock of MCCB's as identified during a detailed physical inventory and examination in the warehouse. The emphasis was on MCCB's designated QA Class 1 which, according to PINGP's procedures, means that they were procured in a manner consistent with their use in safety-related systems and equipment. The inspector found over 40 items on the shelves including (a) complete MCCB's, (b) MCCB's without their

replaceable thermal-magnetic trip units or lugs installed, (c) uninstalled trip units and lugs, and (d) one MCCB in a "half-cell" which, in PINGP's terminology, is a motor control center (MCC) enclosure of one half the size of a complete motor controller cell housing and which contains an MCCB only. These are used as feeders for distribution panels or subtier MCC's.

Of these components, there were 37 MCCB's with tags identifying them as QA1 material. Note that this total included a few components which would produce a completed MCCB when assembled.

During this warehouse inventory review, the NRC inspector identified several discrepancies between the computer inventory printout and the actual stock including some item descriptions and part numbers that were incorrect on the printout and one GE type TFK236225WL MCCB on the shelf (with a QA1 tag) that was not on the inventory printout.

The items on the printout with incorrect part numbers and item descriptions consisted of (a) MCCB's that had been shipped as separate frames, trip units, and lugs (according to packing lists) but were identified as complete breakers, (b) trip units only that were identified as complete breakers, (c) frames identified as complete breakers, and (d) breakers with their trip units installed, but identified as frames only.

The QA1 tag on the unlisted type TFK236225WL showed PO A69399MQ with no receipt inspection form (RIF) number. This purchase order was one of a series of blanket purchase orders to Lakeland Engineering Equipment Company (LEE) of Minneapolis from whom PINGP buys a large portion of their replacement electrical components. However, this particular item was either deleted from the inventory or may never have been part of it. The licensee was not able to determine the cause of these discrepancies during this inspection, but is expected to correct them and institute measures as appropriate to prevent recurrence.

5. MCCB Traceability

The second phase of the MCCB portion of this inspection was to establish, to the extent possible, traceability of MCCB's in the warehouse to their manufacturers. In most cases, the available documentation, which consisted of purchase requisitions (called "requisition requests" (RR)), PO's, and RIF's, could be used to establish traceability only to PINGP's immediate suppliers. However, in the case of four MCCB's purchased from LEE, the packing slips on file indicated that they had been direct-shipped from one of their manufacturer's (GE) warehouses. One MCCB (of two received) on the shelf had come from Graybar. Three purchased originally by PINGP's architect/engineer, Fluor Pioneer, were shipped from a GE warehouse in Cincinnati, and the rest were purchased from LEE. For these, the files contained

only LEE packing slip copies except for seven GE THEF136050 breakers for which the file contained a copy of a direct shipment from another supplier.

These seven THEF136050 breakers were part of an order of 16 that had been purchased from LEE under PO QE35428 in 1987. LEE had obtained them from Bud Ferguson's Industrial Control and Supply Company of Whittier, California and had them shipped directly to PINGP. The packing slip/invoice from Bud Ferguson's showed that 16 breakers had been shipped of which one was indicated on the packing slip as "new" and 15 as "used." THEF136050 breakers have not been manufactured for about 13 years, but the documentation indicated they were needed because of their particular trip characteristics in order to be compatible with their individual feeder breakers for trip timing considerations.

During the receipt process, the 16 breakers were marked by the licensee with test specimen numbers "TS-1 through -16" for receipt testing. Of the seven on the shelf, six (TS-2, 4, 6, 11, 13, and 15) were in boxes with labels that appeared to be photocopies of a GE label. The one marked "TS-3" had what appeared to be an original GE label on its box. Except for the labels, the boxes were similar and contained similar packing materials.

TS-3 was probably the one that was considered "new" since its box label appeared to be original. All the MCCB's had slots on their sides (normal for type THEF). However, the slots on the apparently used MCCB's showed signs of tool scratches and gauges, as did the recessed holes for the screws (and the screws themselves) that hold the front and rear halves of the case together. Some anomalies had been noted during testing of these MCCB's that are discussed below.

Review of maintenance and installation documents revealed that the other nine breakers were used or disposed of as follows: Four were used for station battery chargers 11, 12, 21, and 22, which are Class 1E (safety-related) loads. Two were used as supply breakers in the MCC cells for safety-related motor operated valves (MOV's) MV-32024 and MV-32029, isolation valves for feedwater to steam generators 12 and 22, respectively.

One breaker (TS-7) originally selected for use with MV-32029 failed its post-installation testing (preventive maintenance procedure PE-MCC-G7), although records indicated that it had passed its receipt testing by the same procedure. The installation/testing electrician had locked it up in the shop to prevent its use, but had not documented the failure or disposition on the test form. Instead, it was indicated on work request LB315-EB-Q for MV-32029 that the first breaker selected had not tested within specifications. The MCCB in question was provided to the inspectors for examination, but its box was no longer

available. It appeared to be in the same condition as the other "used" MCCB's of this group.

One of the two remaining MCCB's was used with the No. 122 battery room refrigeration unit (non-safety). The other was used as the supply breaker to AC distribution panel 136, one load of which is for safety-related diesel cooling water pump 121.

At the exit meeting, the licensee committed to perform a safety evaluation of this issue and prepare a justification for continued operation for NRC Region III on these MCCB's installed in the safety-related systems identified above.

6. MCCB Dedication

PINGP's dedication of commercial grade MCCB's for safety-related or QA1 service was reviewed. The review included procedures and their implementation, test methods and practices, specifications and test results. Upon completion of this review, the NRC inspector identified deficiencies in the following areas:

- a. PINGP's present program for upgrading commercial grade MCCB's does not include the essential elements needed for an effective dedication program. Establishing documented traceability of MCCB's to their original manufacturer is not required by the PINGP program, and in most cases was not accomplished. Furthermore, the program does not assure an adequate review for suitability for safety-related applications in terms of (1) defining safety functions, (2) determining critical characteristics, and (3) design and manufacturing history review to verify continued suitability. This part of PINGP's program is limited to part number and catalog specification verification only.
- b. The receiving process does not subject commercial grade MCCB's, even the few that may be traceable to the manufacturer (but fabricated without benefit of a 10 CFR Part 50, Appendix B quality assurance (QA) program), to inspection and testing sufficient to provide reasonable assurance that the MCCB's will perform their intended safety functions under all expected service conditions. Receipt inspection consists only of checking part numbers and quantity and inspecting for damage and cleanliness. Testing upon receipt or prior to release for issue is not done and/or documented consistently for all QA1 MCCB's, although PINGP stated that maintenance procedures call for all MCCB's, whether or not receipt tested, to be post-installation tested. Some documented evidence was reviewed that confirmed this practice for the examples identified.
- c. Receipt testing (when it is done) and post-installation MCCB testing consists of performing the MCCB portion of

PINGP Preventive Maintenance Procedure PE-MCC-G7. This procedure included only a test of the thermal overload trip function at 300% of rated nominal load. The instantaneous magnetic trip function, which is provided for short circuit protection, is not tested (and cannot be with PINGP's test equipment). This test, among others, is recommended as a minimum functional verification by GE MCCB application guide GEJ2779G, National Association of Electrical Manufacturers (NEMA) Standard AB 1-1986 (Section 6), NEMA MCCB field inspection and performance verification procedures (NEMA AB 2-1984), and Underwriters Laboratories (UL) Standard 489.

When used as the supply breaker for an MCC cell, the MCCB's instantaneous magnetic trip function is often the only short circuit or ground fault protection provided. Also, the motor starter/controller has its own thermal inverse time overload trip device to provide protection for sustained motor overload conditions.

The inspector asked PINGP to explain the technical basis for PE-MCC-G7 and how PINGP technically justifies use of this procedure alone for dedication of commercial grade MCCB's for use in safety-related applications. In response, the licensee stated that the current version of PE-MCC-G7 was based on a NEMA AB1-1975 field test. However, upon reviewing that test, the inspector found that the continuity check portion (in section 2.38) was omitted as was much of the other testing prescribed by current industry standards.

Review of individual test records revealed some deficiencies in test control and test practices. Some procedures did not contain correct acceptance criteria in terms of trip time limits for various types of MCCB's and at various test values of load (multiples of nominal trip setting). The wrong specifications were chosen from the procedures on occasion. No Engineering or QC checks of test preparation or conduct was evident from the records. Data sheets were filled out inconsistently (not always in accordance with the clear intent of procedure), and there was no review by QC or Engineering documented in the place indicated on the data sheets.

The following are examples of testing deficiencies identified during the inspectors' review of MCCB testing:

GE type THEF136050 MCCB's purchased from LEE under PO E35428 and received under RIF 18740 on direct-shipment invoice 5604, dated April 13, 1987, from Bud Ferguson's Industrial Control and Supply, were improperly tested under the revision of PE-MCC-G7 in effect at that time. The time specification of 33 to 80 seconds for 300% trip current

(150 amps) recorded on the test form was erroneously chosen from the 104°F ambient temperature column of G7's Table 1 (covering GE MCCB's). Since the ambient temperature recorded for the test was 75°F, the values of 50 to 110 seconds should have been chosen from the 77°F column. As a result, one pole on test specimen TS-2 having tripped at 49.1 seconds, and all three poles on TS-5 (at 40.6, 45.9 and 45.5 seconds) were out of specification (low). These particular breakers were chosen to avoid breaker coordination problems, but out of specification trip timing could contribute to these problems. This condition was not noted on the test record and reviews and dispositions of the anomalies were not documented.

II. QUALITY ASSURANCE AUDITS

The inspectors reviewed the licensee's quality assurance (QA) audit program of vendors of safety-related materials, equipment, and services. Vendor audits for the PINGP are the responsibility of the Power Supply Quality Assurance (PSQA) group of the licensee, headquartered in Minneapolis, Minnesota. These audits are performed utilizing a combination of PSQA personnel and private consultants. A review of the 1988 PSQA audit schedule identified a total of 137 audits scheduled to be performed. The results are used to maintain and update the Operational Quality Assurance Vendor List (OQAVL). The OQAVL identifies those vendors evaluated by PSQA as having an "Approved" QA program that is acceptable to the licensee. Vendors which are conditionally approved, inactive, in a review stage, or scheduled for auditing may also be included on the list with appropriate notations.

The OQAVL includes vendors selected and approved based on several factors including acceptable past performance through PSQA vendor audits, qualification as an ASME Nuclear Certificate Holder, and satisfactory results of CASE and licensee approved architect/engineer surveys. Prior to approval, the vendor's QA program is reviewed and implementation verified. The review consists of verification that the vendor's program complies with the applicable requirements of 10 CFR Part 50 Appendix B or ANSI N45.2-1971. Implementation of approved and conditionally approved vendor QA programs are verified initially and triennially thereafter. This verification usually consists of an on-site audit intended to verify continued, effective QA program implementation and may be supplemented periodically as determined by PSQA. The licensee has established three quality levels for procuring items which affect nuclear plant operations. Quality Level A pertains to QA or safety-related items with the exception of fire protection items, Quality Level B is for fire protection items, and Quality Level C is for non-QA items. If the procurement of an item is determined to be Quality Level A, the program provides for three "approaches for assuring quality" using suppliers in one of the following categories:

1. Approved Supplier - This approach may be used when procuring from vendors with QA programs that comply with the applicable requirements of ANSI N45.2-1971, 10 CFR Part 50, Appendix B or its equivalent, and have been approved by PSQA.

2. Verified Supplier - This approach may be used when procuring from suppliers that are not approved, provided certain provisions are specified to verify the quality of the item.
3. Commercial Grade - This approach may be used to procure items which satisfy the 10 CFR Part 21 definition of commercial grade. This approach was previously referred to by the licensee as "safety-related off-the-shelf" procurement.

Items which are not simple or standard in design and manufacture may also require a certificate of conformance from the supplier. In a few instances noted, procurements from approved suppliers received additional verification such as source surveillance or post-installation testing. The licensee relied on this additional verification as an adequate basis for dedicating CGIs.

A. Establishment and Maintenance of the QQAVL

The QQAVL is issued to the PINGP procurement staff to purchase material, equipment, and services for structures, systems, and components requiring quality assurance as specified in the PINGP QA manual. The inspectors selected over 40 vendors listed on the QQAVL which correlated to procurement packages selected by the inspectors for review. The vast majority of vendors reviewed were categorized by PSQA as Approval Codes 1 and 2, which indicate an approved and conditionally approved vendor. Several of the vendors reviewed were strictly suppliers of CGI's. PSQA complied with PINGP procedures for establishment and maintenance of vendors on the QQAVL with one exception noted: Woodward Governor Company was allowed to remain on the QQAVL from August 1985 until September 1986 (when it was removed from the QQAVL) without receiving a triennial audit. The vendors reviewed were primarily used by the licensee for Quality Level A purchases which are used in safety-related applications. Requests for an approved supplier to be incorporated on the QQAVL are initiated by the PINGP site procurement staff.

B. 10 CFR Part 21

During the procurement package review the inspectors identified (see Section I.B.1) several procurements for Quality Level A items, purchased from suppliers approved utilizing the approved supplier approach to assure quality, that failed to impose the requirements of PINGP Form 3-3096, on these suppliers. This form establishes the QA requirements for approved suppliers and also includes a paragraph imposing the requirements of 10 CFR Part 21 on the supplier.

In response to this finding, PINGP produced a copy of an internal audit report performed by Nuclear Operations Quality Assurance (NOQA) in February 1987 (Finding No. FG 87-5) which identified several PINGP PO's placed on approved suppliers which did not include Form 3-3096 or list applicable QA program requirements. PINGP's corrective action was to (1) revise the affected PO's; (2) review open orders, and; (3) send letters to all procurement requestors highlighting this

omission. Corrective action was not undertaken to review all closed PO's (items already shipped and received by PINGP).

The NRC inspectors expressed concern over the omission of form 3-3096; however, PO's identified during the inspection were all issued before NOQA self identified this deficiency. The NRC-identified PO's included the following:

<u>PO</u>	<u>Supplier</u>	<u>PO Date</u>
E26131	Terry Turbine	December 12, 1986
E19716	Limitorque	October 6, 1986
E28767	Limitorque	January 21, 1987
D56510MQ	Foxboro	September 30, 1984
D70038	Vogt Machine	March 21, 1986
E12778	Westinghouse	July 18, 1986

It appears that these PO's were assumed closed at the time of the NOQA finding since they were not listed in the NOQA audit report.

III. LICENSEE/VENDOR INTERFACE

A. Processing of Incoming Vendor-Related Information

The inspectors reviewed the licensee's system for receiving, tracking, and evaluating incoming vendor information. Specifically, the inspectors reviewed the processing of technical information received from Westinghouse, Colt Industries, the Institute for Nuclear Power Operations (INPO), the NRC, and vendors of safety-related equipment and components.

The vendor interface programs at the PINGP are established by the licensee's corporate and plant specific directives. The controlling directives, instructions and procedures are:

- N1ACD 10.3 Operating Experience Assessment
- 5ACD 3.7 Operating Experience Assessment
- 5ACD 3.6 Reporting
- 5AWI 3.3.3 Action Item Tracking System
- 5AWI 3.6.1 Investigative Reports for RE's and SOE's
- 3NTS 3.2 Operating Experience Assessment Program
- 3NTS 3.1 Nuclear Network Screening Guide

Corporate Nuclear Administrative Control Directive N1ACD 10.3 states that the assessment of vendor and operating experience is accomplished through two programs. INPO communications and operating events for the licensee's nuclear plants are assessed by Nuclear Technical Services (NTS) procedures while all other vendor, regulatory and operating communications are assessed by the plants' Operating Experience Assessment Programs. The individual plants' Operating Experience Assessment Programs also include the processing of incoming 10 CFR Part 21 notifications. The PINGP Operating Control Assessment Program is delineated in Administrative Control Directive 5ACD 3.7, Operating Experience Assessment. This is the assessment program and its implementation reviewed during the inspection.

The scope of the plant assessment program includes most regulatory and vendor experience information except for INPO-provided information. Information received at the plant by the Plant Manager is forwarded to the Staff Engineer for action. The Staff Engineer or a qualified designee screens the information for applicability to the plant. If the information is determined not to be applicable, no further action is taken. If it is determined that the information is applicable, it is forwarded to the appropriate organization for formal assessment and action by a qualified individual. If the required action cannot be performed immediately, it may be input to the plant action item system for tracking. The results of the screening and assessment are documented on PINGP Form 536, which is maintained and the status tracked by the Staff Engineer.

Theoretically, the process described above should accomplish its purpose. However, deficiencies in implementation were identified that could be corrected by strengthening the program guidelines. Specifically, the directive does not provide experience criteria for the qualified reviewers, nor does the directive provide guidance on the level of documentation that should be included with the assessment form. Additionally, screening and assessment of this information by Staff Engineers and their supervisors was not sufficiently detailed. Specific examples are provided in later sections of this report.

B. Vendor Technical Information

Approximately 40 vendor issues were reviewed by the inspectors to determine the adequacy of the screening and assessment process. The vendor issues reviewed included Westinghouse Technical Bulletins and letters, IE and NRC Information Notices, incoming 10 CFR Part 21 notifications, INPO SER's, and other vendor issues. Additionally, 17 Colt Industries/Fairbanks Morse Engine Division (FMED) emergency diesel generator Service Information Letters were reviewed. Some of the vendor issues were selected from the plant Operating Experience Assessment Log. Several other notices that should have been received at the plant, but were not included on the log, were requested to determine if they were received and appropriately addressed. These included the Colt/FMED Service Information Letters. During discussions with the licensee, it was discovered that contrary to plant directives, not all vendor issues are reviewed by the Operating Experience Assessment Program. The plant system engineers in some instances received information directly from vendors that bypassed the Operating Experience Assessment Program.

The inspectors found that 16 of 40 issues reviewed were not applicable to PINGP. Two issues (letters) could not be found and four issues that had been addressed were not included in the assessment program. In most cases, the documentation included with PINGP Form 536 did not contain sufficient information for the inspectors to determine if the assessment was correct. The inspectors had to request additional information for several issues in order to determine the adequacy of the assessments. Specific concerns related to the assessments are described in later sections of this report.

During the inspection, the NRC inspectors held discussions with licensee personnel and performed procedural reviews that addressed the interface between the licensee and its vendors. As a result, the inspectors determined that the licensee has not established a formal interface program with vendors other than Westinghouse, the NSSS supplier. That is, the licensee lacks a formal program for interfacing with the Class 1E switchgear and emergency diesel generator suppliers. In addition, the licensee has not established a program for periodic contact with vendors of key safety-related components, as identified by the licensee.

C. NSSS Interface

The inspectors reviewed a sampling of the licensee's disposition of Technical Bulletins and letters received from Westinghouse. The NRC inspectors identified concerns with the screening and assessment of the following Westinghouse Technical Bulletins and letters discussed below:

1. Westinghouse Technical Bulletin 85-18, Revision 1 & 2 was issued to alert licensees that electrical solenoid valves and supporting equipment used for isolation of main feedwater may require specific qualification requirements depending on their function and location. For some applications, the main and bypass feedwater control valves provide a backup isolation function to the main feedwater isolation valve to satisfy the single-failure criterion. Redundant nonsafety-related isolation functions are allowed as backup (NUREG 0138) to a single safety-related isolation valve in the Westinghouse feedwater system. (The bulletin went on to describe a situation where a steam line break in the proximity of the feedwater flow control valve had the potential to affect the closure capability of this valve. If this situation existed at the recipient's plant, environmentally qualified equipment should be installed or alternative actions considered.

At the PINGP, the architect/engineer, Fluor Pioneer, did take credit for the flow control valve as one of the redundant nonsafety-related backups to the isolation valve. However, it was in a location where it could be affected by a steam line break. Nevertheless, the licensee determined that this was a redundant nonsafety-related function and, therefore, qualification of the equipment was not necessary. This assessment was incorrect, however, because the licensee failed to consider that the nonsafety-related redundant functions had to be maintained to act as a backup to the single safety-related isolation valve, as described in NUREG-0138 and the facility FSAR, Appendix I. Based on the above, these valves should be environmentally qualified.

2. Westinghouse Technical Bulletin 84-06 describes a condition in which auxiliary feedwater (AFW) delivered to the steam generators was less than that required to meet the plant design basis for a loss of normal feedwater accident. The bulletin recommended that

the procedures used to verify the AFW flow rates measured be consistent with the pressure conditions specified in the design criteria. This issue was screened by the licensee and determined not to be applicable because discharge pressure used in the surveillance is consistent with the design criteria. The current revision of the annual flow test performed during startup did not provide any criteria for measuring AFW pressure. The surveillance used at the time the bulletin was received did include a step for recording pump discharge pressure, but was not necessarily consistent with the design criteria. The surveillance did not direct the operators to perform the test against a specific pressure in the steam generator or ensure that the data were consistent with the pump curves.

The data obtained from surveillance performed in 1984 were sufficient to assure the inspectors that the system could perform its intended function, but the surveillance as currently performed no longer provides this assurance. The licensee committed to revise the procedure for AFW flow testing to include specific criteria for establishing pressure as well as flow.

3. On June 25, 1987, Westinghouse issued a letter concerning a recommended modification to the component cooling water system (CCWS), the design of which could potentially violate containment isolation capability. The letter was issued to correct a Westinghouse recommendation made several years before that the CCWS be modified to prevent a potential overpressure condition in the system piping. The earlier modification involved maintaining a continuous vent path from the CCWS surge tank by removing relief valve internals or disabling the tank isolation vent valve. A Westinghouse plant that performed this modification subsequently found that the containment isolation requirements of General Design Criteria (GDC) 56 and 57 were violated. In the later Westinghouse recommendation, licensees who performed this modification were advised to review their plant design to determine if the violation modification resulted in the violation of their containment isolation criteria.

During the screening and evaluation process, the licensee determined that the matter was applicable to PINGP. This was based on a section in the plant updated FSAR which stated that any containment leakage to the atmosphere through the CCWS would be minimized because of the pressure head of water in the system piping. The screening and evaluation did not address whether the modification had been performed or whether, if performed, it affected the plant design basis for containment isolation features, and therefore, was deemed to be inadequate by the inspectors. The NRC inspectors found that the modification had been performed; however, the plant had been designed such that redundant isolation valves were installed and the plant still met the requirements of GDC 56 and 57.

D. Emergency Diesel Generator Interface

The PINGP has two emergency diesel generators (EDG's), designated as D1 and D2, to support emergency-type loads in the event of the loss of offsite power. The diesels were manufactured by Colt Industries/Fairbanks Morse Engine Division (Colt/FMED), Model 3800 TD 8-1/8, rated at 3000 kw. The governors were manufactured by Woodward Governor Company, Model UG8. The operational time accumulated on the D1 and D2 diesels is 1616 hours and 2274 hours, respectively, at the time of the inspection.

1. Review of Colt/FMED Manuals

The inspectors reviewed the following manuals that are applicable to the EDGs:

- ° Plant Operations Manual, Section D18 "Equipment Lubrication" Rev. 24, dated August 24, 1988; p. 9 for D1 and D2 (Lube oils for diesel)
- ° Technical Manual, No. X-HIAW 28-44, "Emergency Diesel Generator Set," Rev. 15, Fairbanks Morse engine and Woodward governor
- ° Service Manual, "3800 TD 8-1/8 Engine Generating Set and Accessories"

The Service Manual included most of the Service Information Letters (SIL's) from Fairbanks Morse which are applicable to the licensee's EDG's. One SIL (C-1, dated November 15, 1984) that was applicable to the PC Model diesel was erroneously included, and missing were SIL's A-7 and A-17, dated December 16, 1985 and April 22, 1988, respectively. The manual also had information on diesel accessories including information from Colt Industries, Nugent filters, Class 9012 pressure switch 112AS, and various Quincy items. However, the information had not been inserted in the proper manual location by pen-and-ink changes to assure that the maintenance personnel would be aware of the change without rereading each vendor letter. In discussions with licensee personnel, the inspectors learned that the receipt and disposition of incoming vendor information were treated in a fragmented manner. Not all the information received was passed on to the EDG system engineer. Some was sent directly to the Manual Custodian, and, as a result, no tracking system was established to assure all items of information were identified and properly handled in a timely manner.

The inspectors also reviewed EDG Annual Inspection procedures, PM 3001-2-D1, Rev. 2, and PM 3001-2-D2, Rev. 2. It was noted that in some cases the procedures included appropriate steps in the annual inspection process consistent with items identified in the vendor's SIL's. Included were timing chain inspection (SIL A-11), blower lobe inspection and clearance readings (SIL's

A-1 and A-8), vertical drive inspection (SIL A-9), and inlet air check valve lubrication (SIL A-3).

The inspectors concluded that the licensee's system for processing EDG vendor provided information should be reviewed and improved to assure that all such information is properly evaluated and implemented in the appropriate manuals when required.

2. Review of Colt/FMED SIL's and R&SI's

The inspectors reviewed the Repair and Service Information (R&SI) and the SIL's issued by Colt/FMED that were applicable to the licensee's EDG to determine whether they had been properly considered and implemented. The applicable documents consisted of 15 SIL's (A-1 through A-17 with the exception of A-6 and A-10) and seven R&SI's dated April 22, 1971 to April 18, 1980. The licensee's procedure to handle such matters, as previously discussed, involves use of the Operating Experience Assessment (OEA) (PINGP Form 536, Rev. 3) to evaluate an operating experience document and to identify necessary corrective action. While there was minimal evidence that some of the matters had been addressed in the work request log, the documented evaluation for applicability to PINGP using the OEA forms had not been completed; in fact they were initiated and completed during the the last week of the inspection and made available to the inspectors for review. However, no forms were made available for the seven R&SI's. Based on the completed OEA forms, it was determined that some of the corrective actions for the SIL's involving hardware changes, procedural changes, parts list changes, and other manual changes still have to be performed. In several instances, Work Requests were identified under which some of the necessary corrective actions had been completed.

In SIL A-17, dated April 22, 1988, Colt/FMED recommended that flexible hoses in the fuel crossover pipe be changed to pipe assemblies made of steel tubing to avoid the risk of potential fire. The licensee had not received, evaluated, or implemented the recommended modifications in the SIL at of the time of the inspection. The inspectors gave a copy of the SIL to the licensee; and, following an evaluation, the licensee committed to implement the recommendation by November and December 1988 on the D2 and D1 engines, respectively.

This situation in which PINGP had not received a SIL applicable to them, is why licensees need to establish formal interface with their EDG vendor, as well as informally contacting key vendors of safety-related components.

The Production Engineer responsible for all aspects of the D1 and D2 diesels indicated that many hardware modifications have been made to the diesels over the years based on recommendations from the vendor representatives. However, these recommendations

are not always reported by the vendor through the SIL/R&SI system. The modifications made in this manner can be identified through the licensee's work request log.

The inspectors concluded that the licensee had not performed complete and timely evaluations of all the EDG vendor-provided information as described in procedure PINGP 5ACD 3.7, "Operating Experience Assessment."

3. NRC Information Notices Affecting the EDG's

The inspector selected 12 of the most recent information notices applicable to the EDG's to determine whether the licensee had evaluated and implemented any necessary action. The licensee demonstrated evaluation of each information notice by means of a completed OEA form. The inspectors concluded that the licensee was adequately considering and implementing the information notices potentially applicable to the EDG's in a timely manner.

4. Procurement of Spare and Replacement EDG Parts

The licensee issued Administrative Control Directive 5ACD 2.1, Rev. 7 on August 30, 1988 that identifies the safety-related structures, systems and components at PINGP. The diesel generator and major subitems are included on the Q-List. To further define components, the licensee has established a Q-List by system and component that identifies all the safety-related items on the D1 and D2 diesels. The list consists of 255 items. Spare and replacement parts for the diesels are primarily purchased from Colt/FMED and Woodward Governor.

The inspectors reviewed several purchase order (POs) for many items including bearings, valves, filters, hoses, gaskets, thermocouples, bolts, manifold covers, and springs. In all cases, the requisition request identified the procurement as a Quality Level A procurement, and the purchase order required the submittal of a certificate of compliance (COC) to specify that the parts are supplied under the specifications of original purchase order X-HIAW 28. The PO's also required that the supplier have a quality assurance program that meets ANSI N45.2-1971, 10 CFR 50 Appendix B or equivalent and has been accepted by the licensee, and that the supplier must meet the requirements of 10 CFR Part 21 for the reporting of defects.

E. Incoming 10 CFR Part 21 Reports and Vendor and NRC Correspondence

The inspectors reviewed the licensee's assessment of several Part 21 reports and vendor letters to determine whether the licensee had taken appropriate action. Some of the letters sent to the licensee were not specifically identified as Part 21 notifications as was stated in vendor notifications to the NRC. These letters, however, did alert the licensee that they should be assessed for potential affect on the plant. The inspectors also reviewed a limited number

of licensee assessments of NRC correspondence possibly affecting equipment at the PINGP. Assessments that were not adequately performed are described below.

1. An Anchor/Darling letter, dated December 10, 1985, was sent to licensees, including PINGP, describing a problem of valves with missing lock welds at the hinge support/bonnet interface. Anchor/Darling indicated that the PINGP had received valves that could be effected by the problem. The licensee could not find any record that it had received this letter. During the inspection, the licensee assessed the matter and determined that some of the suspect valves were being used at PINGP but only in non safety-related systems. No immediate actions were required.

This is a good example why licensees need to informally contact key vendors of safety-related components and establish an interface for receipt of technical information.

2. Target Rock Corporation issued a letter, dated May 31, 1988, describing a problem with cracking of the insulation on lead wires for position indicator switches, that could affect position indication on Target Rock solenoid valves. Target Rock recommended that the position indication switch be replaced if evidence of insulation cracking is noted. The licensee evaluation stated that the valves were used at PINGP as head vent valves, but since the position indication switches were not safety-related, no actions were required at this time. The licensee did not address the environmental qualification aspects of the valves and position indication switches in the OEA assessment. The NRC inspectors discovered that the valves were on the EQ list, but the position indication switches were not included, nor were they listed in the licensee's submittals in response to Regulatory Guide 1.97. The inspectors concluded that the licensee's screening assessment and evaluation was incomplete because it did not consider the EQ aspects of the valve; however, no requirements were violated.
3. The Tube Turns Division of Chemetron Corporation issued a letter on June 6, 1980, which discussed potential problems of mixed heats of steel on 4-inch pipe elbows and 2-inch tees. The letter listed PINGP as one of the plants being investigated and stated that the results were complete for PINGP. The licensee could find no record of action on this letter during this inspection. However, the initial assessment indicated that PINGP was not affected and the licensee stated they would continue to investigate. This is another example of why licensees need to establish informal contacts with their vendors.
4. Gamma-Metrics (G-M) issued a 10 CFR Part 21 notification, dated May 10, 1988, concerning the environmental qualification of the ex-core neutron flux detector system. The Part 21 notification identified test failures of the cable conduit system that resulted from porous solder joints that would allow moisture

intrusion under simulated BWR, in-drywell loss-of-coolant-accident (LOCA) test conditions such that signal integrity and instrument performance would likely be unacceptably degraded. The detector provides post-accident monitoring (PAM) capability for reactor core neutron flux as required by Regulatory Guide 1.97 which also requires the instrumentation for this parameter to be environmentally qualified.

NRC Generic Letter (GL) 88-07 instructed licensees to take certain actions when qualified equipment is found, or suspected of being, unqualified. The PINGP evaluation (under Action Item 0415) of the G-M 10 CFR Part 21 report and subsequent actions were considered inadequate in that the requirements of GL 88-07 were not met, including prompt determination of operability, preparation of a justification for continued operation (JCO), and evaluation of technical specification considerations and reportability.

Prompted by the NRC inspector's inquiry into this matter, the licensee prepared a safety evaluation (No. 250, dated November 4, 1988) that addressed the GL 88-07 concerns with regard to the questioned environmental qualification of the G-M neutron detectors' cable conduit system, including a JCO. This safety evaluation was provided to the NRC inspectors for review shortly before the exit meeting. The brief, preliminary review that was accomplished in the limited time available, together with additional information on testing margins requested by the inspector, indicated that there was no immediate safety concern. However, the inspectors concluded that this was an example of an inadequate and untimely review of an incoming 10 CFR Part 21 notification.

5. IE Information Notice 84-83, was provided to alert licensees of the potential for significant degradation of safety associated with various battery-related problems. The notice describes the circumstances contributing to battery problems and recommends preventive measures. The licensee's assessment of this issue stated that it was not applicable because the licensee had been aware of these problems for many years and had taken corrective/preventive measures. The licensee's procedures in effect at the time of the notice were reviewed and contained none of the recommendations suggested by the notice. The licensee told the inspectors that the preventive measures implemented were based on recommendations contained in INPO operations and maintenance reminder (O&MR) 308. Some of these recommendations were not implemented until 1988. This is another example of an inadequate OEA screening and evaluation.
6. IE Information Notice 88-46 and Supplement 1 were issued to alert licensees of defective circuit breakers reported by another licensee. The inspectors reviewed the PINGP evaluation and actions in response to the information notice and its supplement and found them to be inadequate. Although, the

licensee's OEA form for this item, dated August 8, 1988, stated that none of the subject breakers were at PINGP, the inspectors identified several examples of similar Westinghouse models (differing only in trip setting) and one example of a GE (type TFJ) MCCB of the same model listed in the notice.

A similar disposition was made for Supplement 1, as documented on an OEA form dated August 15, 1988, but the inspectors identified many MCCB's at PINGP that were similar to the ones listed in the notice and one model THED136100WL, which is one of the particular models listed in the supplement. The licensee stated that it would re-evaluate the notice and its supplement and identify all the appropriate circuit breakers at PINGP.

APPENDIX A

1. PERSONS CONTACTED:

A. Northern States Power Company

R. Hansen, Procurement Engineer
E. Watzl, Plant Manager
D. Mendele, Plant Superintendent, Engineering and Radiation Protection
K. Beadell, Superintendent, Technical Engineering
M. Klee, Superintendent, Quality Engineering
L. Templeton, Quality Specialist
W. Craig, CYGNA
G. Fehr, CYGNA
A. Fakhar, CYGNA
T. Maxey, Tenera
R. Desautels, Tenera
A. Hunstead, Staff Engineer
J. Shuelke, System Engineer
G. Miller, Superintendent, Operations Engineering
J. Daley, Plant Administration Specialist
G. Eckholt, Engineer
J. Johnson, Plant Office Manager
M. Wadley, Shift Manager
D. Brown, Fire Protection Engineer
R. Oelschlager, Environmental Qualification Engineer
R. Pearson, Senior Production Engineer
J. Pederson, Production Engineer
S. Hiedeman, Production Engineer
G. Gerl, Production Engineer
E. Burke, Production Engineer
D. Lortscher, Purchasing and Inventory Control Superintendent

B. Nuclear Regulatory Commission

*H. Miller, Director, Division of Reactor Safety, RIII
*U. Potapovs, Chief, Special Projects Inspection Section, VIB
*D. DiIanni, Project Manager, NRR
*J. Hard, Senior Resident Inspector
*M. Moser, Resident Inspector

*Attended exit meeting

APPENDIX B

PROCUREMENT PROCESS AND PROCEDURES

The procurement of material, equipment, and services at Prairie Island Nuclear Generating Station (PINGP) is governed by the procedures listed in this appendix. When the need for procurement of material or services is identified, the cognizant system engineer will cause a requisition request (RR) to be prepared listing all technical and quality assurance (QA) requirements. The RR is reviewed and approved by the appropriate department head with QA concurrence. Any engineering evaluations that are required are prepared by the onsite engineering support organization. The purchasing department, headquartered at the Northern States Power Company corporate offices in Minneapolis, Minnesota, enters the information into its computer and produces a computerized document called a purchase requisition (PR). The PR is reviewed for accuracy and is signed by the appropriate level of management, depending on the cost involved. The purchasing department then prints out the information on a purchase order (PO) form for dispatch to the vendor.

It should be noted that materials, equipment, and services (including replacement components and piece-parts classified by PINGP as Quality Level A/safety-related/QA1) are subject to the requirements of 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants" and 10 CFR Part 21, "Reporting of Defects and Noncompliance." It should also be noted that these requirements apply to facilities licensed under 10 CFR Part 50, regardless of the original basis or quality assurance standard under which the facility was constructed.

A facility licensed by the NRC under 10 CFR Part 50 may choose to procure parts, equipment, or services for use in safety-class applications from vendors who lack a QA program that complies with 10 CFR Part 50, Appendix B. The facility must then institute its own measures to ensure that the procured materials are of adequate quality and capability to perform their safety-related functions under normal service and seismic and harsh environmental conditions.

In the course of inspecting the licensee procurement program and its implementation, the NRC inspectors reviewed the following corporate level procedures:

- ° NSP/PINGP Administrative Control Directives (ACD's):
 - N1ACD 6.1, "Uniform Nuclear Procurement Process"
 - N1ACD 6.3, "Material Control"
- ° NSP/PINGP Corporate Administrative Work Instructions (AWI's):
 - N1AWI 6.1.1, "Procurement Overview"
 - N1AWI 6.1.2, "Internal Procurement"

- NIAWI 6.1.3, "Planning Procurement of Services"
- NIAWI 6.1.4, "Planning Procurement of Items"
- NIAWI 6.1.5, "Requisition Contents"
- NIAWI 6.1.6, "Procurement of Fuel"
- NIAWI 6.1.7, "Use of Approved Supplier"
- NIAWI 6.1.8, "Use of Verified Supplier"
- NIAWI 6.1.9, "Commercial Grade Procurement"
- NIAWI 6.1.10, "Quality Level B Procurement"
- NIAWI 6.1.11, "Receiving Planning Activities"
- NIAWI 6.1.12, "Source Verification Activities"
- NIAWI 6.1.13, "Purchase Requisition Processing"
- NIAWI 6.1.14, "Blanket Purchase Orders"
- NIAWI 6.1.15, "Receiving Activities"

The following site procurement procedures were also reviewed:

- ° PINGP ACD's:
 - 5ACD 8.1, "Receiving Process"
 - 5ACD 8.2, "Material Control"
- ° PINGP Section Work Instructions (SWI's):
 - SWI-SQE-12, "Quality Control Receipt Inspection"

The overall procurement process is governed by procedure NIACD 6.1, "Uniform Nuclear Procurement Process." This procedure, defines the licensee's Quality Level A or B procurements, the quality level depending on the method of procurement and the intended use or availability for use of the item or service purchased.

Quality Level A and B procurements each have associated prescribed controls, commensurate with the degree and nature of importance to plant safety of the purchased system or equipment. To determine the proper level of control and quality assurance required for procurement, as well as for other reasons, the type and relative degree of importance to safety are defined for all plant systems and equipment in accordance with the guidelines in the applicable industry standards.

Those materials, equipment, and services considered not important to safety are procured under Quality Level B (covered by procedure NIAWI 6.1.10).

Under the licensee's program for equipment environmental qualification (EQ) pursuant to 10 CFR 50.49, additional electrical equipment which is not functionally classified 1E, but which is required to be environmentally qualified (including certain non-1E and post-accident monitoring equipment), is treated for procurement purposes, as Class 1E equipment.

Procedure N1ACD 6.1 prescribes certain controls for each procurement quality level. For procurements classified as QA1, the procedure states that 10 CFR Part 21 applies. QA1 is to be reserved for purchases of safety-related equipment, components, and services, and suppliers are to be approved, that is, included on the Approved Suppliers List (ASL). The procedure provides for three methods of or "approaches to" achieving quality: (1) use of "approved suppliers" who have a complete 10 CFR Part 50 Appendix B QA program and accept orders to which 10 CFR Part 21 is applicable (covered by procedure NIAWI 6.1.7), (2) use of "verified suppliers" whose QA program is acceptable when supplemented by source verification and surveillance activities, but may not be complete with respect to 10 CFR Part 50 Appendix B (covered by procedure NIAWI F 1.8), and commercial grade procurement (covered by NIAWI 6.1.9), and (3) use of "commercial grade suppliers" supplemented by a dedication process to assure that the procured item will function properly in a safety-related application.

Review of the procedures revealed some programmatic deficiencies and review of individual Quality Level A procurements identified many instances in which these practices resulted in parts of indeterminate quality being installed in safety-related systems. Examples of these are discussed in the main body of this inspection report.

The elements missing in the licensee's program that would be necessary for adequate dedication would include, but are not limited to: (1) establishing traceability of the component to its original manufacturer; (2) definition of the safety functions of the item to be dedicated and the conditions under which they must be performed; (3) identification of critical characteristics or attributes considered vital to the item's ability to perform as required under all design conditions including seismic; (4) review and technical evaluation of any changes in design, process, and materials and of any effect on the suitability for nuclear applications under all design conditions; (5) methods for receipt inspection and testing sufficient to demonstrate that specifications are met; and (6) detailed requirements for documentation of these actions.

First, in implementation of the dedication program, the licensee failed in most cases to establish traceability. Although many non-approved or non-verified vendors provided COC's, the licensee accepted them without substantiating the validity or basis of the COC, or verifying the vendors' ability to make such certifications. This was particularly relevant in the cases of vendors who are not the original manufacturer. The programmatic problem is that this practice is allowed by the procedures and that such verification of COC's is not explicitly called for in the procedures.

Second, the procedures require that the licensee evaluate the suitability of commercial grade items for use in safety-related applications. This consists of nothing more than a verification that the item in question meets the definition of commercial grade as given in 10 CFR Part 21.

In practice, no further engineering or technical evaluation, and no review of form, fit, and function beyond part number verification and catalog specifications are documented. Therefore, under this system, the process of dedicating or upgrading the commercial grade material for nuclear safety service at PINGP lacks crucial elements. As a result, the process fails to provide the assurances otherwise associated with manufacturing under a 10 CFR Part 50, Appendix B QA program, that is audited and approved by the licensee, and the assurance, under 10 CFR Part 21, that any deviations from technical procurement specifications would, as a minimum, be reported to the licensee for evaluation of the potential for creation of a substantial safety hazard.

It should be noted that the licensee has revised their procurement process and procedures for commercial grade procurement. Procedure NIAWI 6.1.9 was in a preliminary stage and had not been approved by the appropriate levels of management for everyday use. The licensee stated that this revision to NIAWI 6.1.9 addresses the inspectors' concerns documented above. The inspectors did not review this revision as part of the inspection.