U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-456/92013(DRS); No. 50-457/92013(DRS)

Docket Nos. 50-456; 50-457 Licenses No. NPF-72; No. NPF-77

Licensee: Commonwealth Edison Company
Licensing Department-Suite 300
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: Braidwood Nuclear Power Station - Units 1 & 2

Inspection At: Braceville, IL 60407

Inspection Conducted: June 1-12 and 25, 1992

Inspectors: H. A. Walker — 7/8/92
H. A. Walker Date

G. M. Hausman — 7/8/92
G. M. Hausman Date

D. L. Schrum — 7/8/92
D. L. Schrum Date

Approved By: F. J. Jablonski — 7/9/92
F. J. Jablonski, Chief Date
Maintenance and Outages Section

Inspection Summary

Inspection conducted June 1-12 and 25, 1992 (Reports No. 50-456/92013(DRS); No. 50-457/92013(DRS))
Areas Inspected: Routine, announced inspection of design change and engineering support activities using selected portions of Inspection Module 37700, to determine if design changes and engineering support were effectively controlled and implemented.
Results: Overall performance in the areas inspected was satisfactory. In most cases, engineering and technical staff personnel were experienced and well trained. Some design changes were delayed or canceled due to insufficient funds; however, no items important to safety appeared to be inappropriately delayed. Modification packages appeared to contain adequate documentation, including appropriate 10 CFR 50.59 reviews and post-modification testing reports.

DETAILS

1.0 Principal Persons Contacted

Commonwealth Edison Company

* D. O'Brien, Acting Station Manager
  D. Czerniakowski, Braidwood EQ Coordinator
* L. Guthrie, Acting Production Superintendent
  S. Hunsader, Nuclear Engineering Department - EQ Supervisor
** J. Lewand, Regulatory Assurance NRC Coordinator
* G. Masters, Project Manager
* J. Petro, Acting Technical Superintendent
* D. Skoza, Plant Engineering Supervisor
* G. Vanderheyden, Technical Staff Supervisor

U. S. Nuclear Regulatory Commission

* S. DuPont, Senior Resident Inspector
* F. Jablonski, Section Chief, Maintenance and Outages Section
* R. Roton, Resident Inspector

* Denotes those present at the exit meeting on June 12, 1992.

** Denotes those present at both the June 12, 1992, exit meeting and the supplemental exit discussion on June 25, 1992.

Other persons were contacted as a matter of course during the inspection.

2.0 Licensee Action on Previous Inspection Findings

A number of problems or concerns, identified during past NRC inspections, were reviewed for appropriate licensee corrective actions. The items reviewed and the inspector's evaluation of licensee actions are discussed in this section.

2.1 (Closed) Unresolved Item (456/87027-01 (DRS)):

This item was written on the apparent lack of adequate lighting for access and egress routes to areas that must be manned for safe shutdown. Specific areas noted were the pathways to be used by the operators to the diesel generators and the ESF switchgear rooms. Plant records indicated an evaluation was made of plant emergency lighting for both units. A plant modification was issued to add additional battery operated emergency lights for the pathways to the diesel generators, the ESF switchgear rooms, and many other plant areas. The installation of the additional lighting was completed; however, three emergency light battery packs had failed post-modification testing and were to be replaced. After replacement of the battery packs this modification will be complete. The inspector had no additional concerns in this area. This item is closed.

2.2 (Closed) Unresolved Item (456/88010-02(DRS); 457/88011-02(DRS))

This item was written on the apparent lack of adequate lighting in the remote shutdown panel rooms and the ESF switchgear rooms. Plant records indicated an evaluation was made of plant essential and emergency lighting for the remote shutdown panel rooms and the ESF switchgear rooms for both units and additional lighting was required. A plant modification was completed to improve both the essential and emergency lighting in these areas. The inspector reviewed the installed lighting in the remote shutdown panel rooms for both units and two of the four ESF switchgear rooms (one for each unit). Both essential and emergency lighting appeared to be adequate. The inspector had no additional concerns in this area. This item is closed.

2.3 (Closed) Open Item (456/89018-01(DRS); 457/89018-01(DRS))

This item was written because the spray additive tank level instrument did not have recording capability. Regulatory Guide (RG) 1.97, Category 1 requirements include recording of the instrument signal on at least one channel. The original instrumentation consisted of low level tank indicator lights; however, recording capability was not provided. This item was not previously identified in the Safety Evaluation Report as an exception to RG 1.97. The licensee had committed to document this deviation.

The licensee submitted justification for the deviation in a letter dated August 1, 1989. The Region III inspectors discussed this letter with the Instrumentation Systems Control Branch at NRR. Based upon this discussion, the inspectors concluded that the instrumentation provided was acceptable and the inspectors had no additional concerns in this area. This item and SIMS Item Number 67.3.3 are closed.

2.4 (Closed) Unresolved Item (456/89018-03(DRS); 457/89018-03(DRS))

This item questioned the equipment qualification (EQ) of control circuit application terminal blocks installed inside specific junction boxes. The junction boxes were located in High Energy Line Break (HELB) areas, with the attached conduits located directly above the terminal blocks. The inspectors were concerned that moisture would collect in the conduits during a HELB and would drip directly onto the terminal blocks, creating higher than acceptable leakage currents. The inspectors also noted that the configuration used in the qualification test report varied from the plant installed configuration.

The inspectors reviewed the licensee's documentation for the

specific junction boxes and associated terminal blocks identified in the previous inspection. The licensee had conducted a review of all junction boxes inside and outside the containment that contained Marathon 1600 terminal blocks used in Class 1E control applications, which could be subjected to loss of coolant accident (LOCA)/HELB conditions. Based upon the review of this documentation, the inspectors concluded that the licensee's evaluation was acceptable and the inspectors had no additional concerns in this area. This item is closed.

2.5 (Open) Unresolved Item (456/89018-04(DRS); 457/89018-04(DRS))

This item was written because weep holes were not installed in pull boxes located in harsh environments. The inspectors were concerned that, in the event of an accident, the contents of the pull boxes could become submerged or subjected to excessive moisture. Licensee personnel informed the inspectors that high voltage withstand and water absorption tests were conducted on similar cables and splices and that, based on the test results, no additional action was necessary.

The inspectors reviewed the documentation, supplied by the licensee, concerning qualification of the contents installed in pull boxes. The licensee stated that safety related components installed in pull boxes at Braidwood were Class 1E cables and, if the cables were spliced, Raychem or Okonite tape splices were used. The inspectors concluded that the use of Class 1E cables and Raychem splices in pull boxes without weep holes posed no concern; however, based upon discussions with NRR, the use of Okonite tape splices in pull boxes without weep holes had not been approved by the NRC. The NRC had not concurred that existing test report data (Okonite Report # NQRN-3, Rev. 03 and Okonite Engineering Report #407, and Wyle Labs Report #17961-01) supported the use of Okonite tape splices in post-LOCA/HELB submerged conditions. The licensee stated that a review would be conducted to determine if there were any Okonite tape splices installed in pull boxes without weep holes and the use of Okonite tape splices would be reanalyzed with the results submitted, if appropriate, to the NRC Document Control Desk. This item remains open pending evaluation of this additional information.

2.6 (Closed) Violation (456/90008-01(DRS); 457/90008-01(DRS))

This violation was written on the failure of engineering to follow procedures, which required an EQ evaluation of electrical cable to be used in harsh environments. Electrical cable was received from the CECo central warehouse and released for installation as control cable for the hydraulic actuator control solenoid of a main steam isolation valve without the required EQ evaluation. The inspector reviewed the licensee response dated

July 13, 1990, and verified that the actions had been taken to correct the problem. The inspector had no additional concerns in this area. This item is closed.

3.0 Introduction

This inspection focused on engineering and technical support, design changes and modifications and included a review of plant activities, plant records and procedures, and actions taken for the identification and resolution of technical issues and problems. This was accomplished by observation of work activities, interviews with selected personnel including system engineers and engineering management, and reviews of organization charts, training records, and associated documentation. Engineering personnel were interviewed to determine the methods used to control modifications, provide engineering related technical support and to assess the experience levels and knowledge of the technical staff.

3.1 Engineering and Technical Support

Engineering and technical support was reviewed and was considered to be satisfactory. Technical support was provided by systems engineers who were assigned specific plant system responsibilities. The inspectors reviewed system engineer responsibilities, staffing levels, experience level, and technical capabilities.

The technical staff system engineering responsibility was provided by 38 system engineers, 5 lead engineers, 3 assistant supervisors, and 1 technical staff supervisor. The experience level for the system engineering technical staff appeared to be adequate in most cases and the system engineering responsibilities appeared to be adequately divided among the staff. The inspectors were concerned that the low profile systems were consistently assigned to the newest engineers and these systems did not get the same quality of engineering evaluation for maintenance problems or other issues as other systems to which the more experienced engineers were assigned. Most system engineers appeared very familiar with the assigned systems. System walkdowns were routinely performed and system engineers often accompanied and assisted maintenance during trouble-shooting of problems. In addition, system engineers performed root cause analysis and investigations as needed to determine the actual cause of equipment problems.

The inspectors concluded, based on the evaluation, that the systems engineers were competent, well motivated and were adequately trained; experience levels were satisfactory in most cases. Engineering evaluations and technical problem resolutions were considered to be adequate. The inspectors had no significant concerns in this area.

3.1.1 Trending

The inspectors reviewed the methods used to control and implement trending and the resulting corrective actions. The inspectors noted that the Performance Monitoring Group had recently been established and had been assigned the responsibility for most trending effort. Although, other groups (i.e., system engineers) were performing trending of selected systems and components, this group appeared to have been established to consolidate the previously established trending programs, and the predictive maintenance functions into one organization. Due to the recent reorganization, the group's overall responsibility had not been finalized and an overall scoping document had not been developed.

Nuclear plant reliability data system (NPRDS) information was used to trend equipment and component failures. Component failure analysis reports (CFAR) were sometimes requested on specific components. Components with three failures were selected for system engineering evaluation. Balance of plant failures and systems information were also trended. Engineered safeguards system information was trended with trends showing systems availability as well as the reasons the system was removed from service. In addition, predictive maintenance information was trended to detect equipment degradation. Increased maintenance or changes in equipment preventive maintenance were made based on equipment trends.

The plant was in the process of changing the documentation system for performing failure analysis. The new system required that problems requiring failure investigation be documented on a problem identification form (PIF). One form would be used rather than multiple forms. With the PIF design the data could be evaluated for determination of root causes more easily and the information was more adaptable for computer trending.

For significant personnel error problems, licensee personnel used the human performance evaluation system (HPES) for cause analysis. This was considered an excellent method for determining root causes of personnel error problems. The HPES reports reviewed by the inspectors were detailed assessments and appeared to be very thorough. A substantial number of the plant staff had attended the four day HPES root cause analysis training.

Based upon the inspection information, the inspectors concluded that trending and corrective actions were being properly addressed and no significant concerns were noted in this area. Recent actions in assigning trending responsibilities to the Performance Monitoring Group appeared to be an improvement in the trending effort.

3.1.2 Predictive Maintenance

Predictive maintenance included vibration analysis, thermography, oil analysis, erosion/corrosion monitoring and performance monitoring. Engineering support for this effort was provided by the recently formed Performance Monitoring Group. This group was involved in assembling a data base for tracking and trending of equipment performance and failures to use as a basis for making maintenance and corrective action decisions. The group provided coordination and assistance in predictive maintenance. The group also provided program integration and NPRDS database inputs. When considered necessary, component CFARs were obtained to help focus plant corrective action and maintenance efforts. In addition, the group exchanged failure and problem related information with other CECo sites to improve data and obtain improved techniques to track, trend and correct equipment problems. Communication between the Performance Monitoring Group, system engineers, and the maintenance staff was good. Since the group's overall responsibility had not been finalized and the group was still assembling data base information for predictive maintenance, the performance of this group could not be evaluated.

3.1.3 Review and Evaluation of NRC Information Notices

Corporate and plant staff were responsible for sorting, assigning, and tracking NRC information notices (INs). Applicable items were sent to the plant regulatory assurance group for evaluation and follow-up. Specific INs were assigned to cognizant individuals to investigate and determine if corrective actions were needed. If needed, corrective actions were initiated and entered into the licensee's corrective action tracking system. A review of the IN list for the last two years indicated that reviews and corrective actions were adequate and were being performed as the notices were received. Upon completion the site evaluation was sent to the corporate regulatory assurance group for corporate evaluation and close out.

Four INs were selected for review to determine the adequacy of the licensee's evaluations and corrective actions. INs selected were as follows:

- IN 91-46 - Degradation of Emergency Diesel Generator Fuel Oil
- IN 87-04 - Diesel Generator Fails Test Because of Degraded Fuel
- IN 91-13 - Inadequate Testing of Emergency Diesel Generators

- IN 90-80 - Sand Intrusion Resulting in Two Diesel Generators Becoming Inoperable

- IN 87-04 and IN 91-46 - During the review of the response to IN 87-04 and IN 91-46, "Degradation of Emergency Diesel Generator Fuel Oil", the inspector noted that periodic cleaning of the diesel fuel oil tanks was not addressed. The inspector also noted that the plant did not have a fuel oil recirculation system to periodically recirculate and filter the diesel fuel in the diesel fuel oil storage tanks. In addition, the parameters of the diesel fuel oil monthly tests were not consistently trended. Recirculation and filtering would inhibit fuel oil degradation and trending would give an indication of fuel degrading prior to affecting diesel operability.

  Later, licensee personnel determined that the fuel oil tanks were on a scheduled ten year preventive maintenance cleaning cycle. The system engineering staff stated that a skid mounted fuel oil recirculation system, that could be moved from site to site, was under consideration.

Based on the IN reviews, the inspectors concluded that, in most cases, a good review was performed and the evaluations were adequate and timely and the actions described in the responses were adequate to prevent or correct the described problems. The responses, however, did not indicate whether other CECo plants were contacted on specific INs for comparison of information to determine the best corrective actions.

3.2 Design Changes and Modifications

The control of design changes was considered satisfactory. Although some minor problems were noted, the problems were corrected immediately or were not considered sufficient to impact the effective control of design changes and modifications. Since both units of the plant were operating, very little modification installation work was being performed.

The Engineering Nuclear Construction (ENC) group was primarily responsible for the design change process. This group was divided between the site and the Downers Grove corporate office. For larger design changes, a contractor, Sargent and Lundy, was used to assist in the design effort. The ENC group was doing a good job in all areas of the modification process.

The site ENC group was divided into three sections: projects, engineering, and construction. The projects section determined the scope of the work to be performed, performed cost estimates, and scheduled work. The construction section monitored the installation of modifications including the modifications being installed by contractors. The engineering section answered

questions from plant personnel and performed some plant modification designs. Plant problems that went beyond the time or abilities of assigned plant staff were sent to ENC for resolution. Requests for assistance came from operations, maintenance, plant technical staff, and regulatory assurance.

Walkdowns were performed, as considered necessary, at all phases of the design and installation stages of modifications to ensure proper design and resolution of design installation problems. The following types of walkdowns were performed for modifications: 1)conceptual walkdown 2)designers walkdown 3)installers walkdown 4)users walkdown. These walkdowns often consisted of a team effort.

Modifications were installed by contractors, a CECo construction group or, in some cases, maintenance depending on the size and complexity of the modification and the availability of personnel. Post-modification testing was specified by engineering and conducted by engineering and operations as appropriate.

3.2.1 Modification Backlog

The inspectors reviewed the backlog of open modifications for cause and impact on safety. Emphasis was placed on work that could affect the operability of safety-related equipment or equipment considered important to safety, which included some BOP components.

Listing of both open major and open minor modifications were provided to the inspectors by licensee personnel. The major modification list contained 112 open modifications dating from 1986 to 1992. The minor modification list contained 147 open modifications dating from 1989 to 1992; therefore, the total open modification backlog on June 1, 1992 was 259. The backlog appeared to be within the capability of present staffing with the support of Sargent and Lundy in the design effort.

Due to financial limitations, a prioritization system was used to ensure that those modifications with the most impact on plant safety and most important to plant operation were given priority over less important items. Efforts were made to decrease the number of modifications prior to design so that potential modifications would not involve additional expense or add to the modification backlog if not considered necessary. A station modification review committee (SMRC) had been established to discuss and evaluate proposed modifications. Licensee personnel also conducted pre-SMRC meetings to discuss the proposed modifications prior to submittal to the SMRC. During this process, modifications were evaluated, coordinated, and sorted by applicability and importance and attempts were made to find more economical acceptable fixes to plant problems if possible. An inspector attended a pre-SMRC meeting on June 4, 1992. The

coordination and interface discussions in the meeting appeared to be very good and the meetings appeared to provide a good method for working out early modification problems and coordination details.

The inspectors reviewed the June 1, 1992, lists of open modifications and selected six of the more significant modificatiors for review. Based on the review, the inspectors concluded that no items with significant safety impacts had been inappropriately delayed. The inspectors also concluded that the methods used to establish modification priorities and eliminate nonessential modifications did not appear to be a problem at this time; however, the careful reviews and evaluations of proposed and approved modifications should continue in order to ensure that important future modifications are approved and installed.

In the review of one open modification package the inspector noted that requirements for procedural changes and training of personnel were specified.

Although the modification was not complete, most installation work had been completed and the equipment had been operable for some time with the modification partially installed. The inspector reviewed the revised procedure and personnel training records and both appeared to be satisfactory.

3.2.2 Review of Modification Work in Progress

The inspectors observed portions of licensee and contractor work performed on the following modifications.

- MCR 20-0-90-007 — Replace flow transmitters for the Waste Water Treatment System Filter Feed Pumps 0TR05PA and 0TR05PB.

  The change out of discharge flow transmitter 0FT-TR0-38 (Foxboro d/p transmitter) was observed on this modificatio[illegible].

- MCR 20-0-91-003 — [illegible]all additional piping and skid on [illegible]ntial service water pipe lines 2SXJ1A1 and 2SXJ2A1 for erosion/corrosion monitoring.

  The installation of "hot taps" for the additional piping was observed on this modification.

No significant concerns were noted in this area. The inspectors concluded that, for the modification work observed, the work performance was satisfactory and complied with the modification

package requirements. Craftsmen performing the work were experienced and knowledgeable of the work performed.

3.2.3 Review of Closed Modification Packages

The inspectors reviewed three closed modification packages. Packages reviewed were as follows:

a. M20-1-89-026 -- Upgrade the residual heat removal (RHR) heat exchanger outlet temperature detectors.

This modification required the replacement of the existing RTDs in the RHR system with seismic and environmentally qualified ones. In addition, portions of the loop controls were relocated to a safety related cabinet and new 1E indications were added on the main control boards. The modification was the result of Regulatory Guide 1.97 requirements for qualified RHR heat exchanger outlet temperature instrument loops.

During the final licensee review of this modification package, NQP noted that the nuclear work request package to delete wiring in one of the panels had not been completed. NQP had a concern that this should have been detected and accounted for during previous reviews of the modification, such as the "User's Walkdown" because there was a potential for a configuration control problem since plant equipment did not match the design. During subsequent reviews, licensee personnel determined that the removal of the panel wiring was not required so the work was not performed; however, this information was never incorporated into the work package. In addition, the work packages had not been included on the Final Documentation Checklist as required by procedure. Although NQP concluded that this problem was minor, the inspectors felt the problem could have been significant. No additional problems of this type were noted, so the problem appeared to be an isolated case.

The modification package documentation was acceptable; description of the modification, work instructions, the 10 CFR 50.59 review, documentation of work performed, and post-modification testing requirements and test records appeared to be adequate.

b. MCR 20-1-89-062 -- Rewire steam generator 1D feedwater isolation valve 1FW046D bypass low flow alarm.

This modification was required to revise the wiring of "D" loop alarm circuit to instrument 1FSH-FW24CC to be consistent with the other three loops. This change also made the loop fail safe so that a card failure would activate an alarm.

The modification package documentation was acceptable; description of the modification, work instructions, documentation of work performed, post-modification testing requirements and test records appeared to be adequate. The 50.59 review could have been more definitive. Statements responding to the review questions were weak and were generally a repeat of the question rather than providing the basis for the answer.

c. MCR 20-2-89-022 -- Replace the existing power cable to the motor operated containment spray header isolation valve 2CS007A with a larger size cable.

This modification was required to replace the existing power cable to motor operated valve (MOV) 2CS007A in order to increase the cable size because of a potential voltage drop problem. The replacement was required because a discrepancy in Limitorque drawings and test reports, indicated an incorrect lower value for the locked rotor current rating of the motor. This incorrect value was used in the initial wire size calculations.

During the review of the package, the inspector noted that the post-modification testing specified in the Sargent and Lundy prepared engineering change notice (ECN) for this modification was not fully implemented as written. The ECN stated, "verify the valve opens and closes at minimum MCC voltage (428V)". The OAD Test Form indicated that the test was performed at 480 volts. There was no justification included in the modification package for not performing the test as specified. Licensee personnel stated that the Sargent and Lundy verification requirements were considered recommendations and not specific test requirements. CECo personnel also stated that the CECo engineering department made the determination as to what test requirements were necessary and would be performed. Design Engineering Department letter Chron #133307, dated December 1, 1989, which was written for the modification, did not include this verification as a requirement. The inspector viewed this as a weakness in the modification package, as well as the modification process, since no justification was mentioned as to why this testing was not performed as specified. Although, the impact of the failure to perform the specific test did not appear to be significant, the accepted CECo practice of failing to evaluate the Sargent and Lundy recommendations is considered a poor practice. Discussions with licensee personnel indicated that no changes were planned in this practice.

The modification package documentation was acceptable; description of the modification, work instructions, the 10 CFR 50.59 review, documentation of work performed, post-

modification testing requirements and test records appeared to be adequate.

2.4 Temporary Design

The inspectors reviewed the methods used to control temporary alterations. Procedure BwAP 2321-18, "Temporary Alterations", Revision 0, provided the control for temporary alterations. Maintenance alterations, such as lifted leads, jumpers and other temporary alterations performed for maintenance purposes, were controlled by procedure BwAP 400-9, "Maintenance Alterations", Revision 0. Any maintenance alteration to be retained in equipment needed for plant operations was required to be controlled per procedure BwAP 2321-18. The temporary alteration procedure BwAP 2321-18 required a 10 CFR 50.59 screening and a full 10 CFR 50.59 review, if appropriate.

The inspectors reviewed the list of temporary alterations and noted that 45 open temporary alterations existed on May 29, 1992. Many of the listed temporary alterations did not appear to be safety or production related. The inspector selected several temporary alteration packages for detailed review. The reviewed packages were satisfactory and 10 CFR 50.59 reviews were included in the packages and were considered adequate.

In the review of temporary alteration package 88-1-032, the inspector noted that a Unit 2 temporary alteration had been combined with the alteration. In discussions with licensee personnel the inspector was told that a temporary alteration reduction program had been in place for more than a year. During this time the number of temporary alterations had been reduced from 120 to 45. One method used to reduce the number of temporary alterations was to combine temporary alterations in order to reduce numbers. In these cases the number of temporary alterations was reduced without the work required to clear the alterations actually being accomplished. In the noted case, Unit 2 temporary alteration 88-2-50 was combined with Unit 1 temporary alteration 88-1-032 and the alteration was removed from the Unit 2 temporary alteration book and log in the control room. In this situation, Reactor Operators did not have a quick method to determine if a temporary alteration existed for the affected equipment on Unit 2. Licensee personnel reviewed the existing open temporary alterations and noted that two other similar cases existed. Appropriate entries were made in the log sheet in the respective Unit Temporary Alteration Book to provide available evidence of an existing temporary alteration. Licensee personnel estimated that the number of temporary alterations had been reduced by approximately 20 using this method; however, only three of the combined alterations were still open at the time of the inspection.

3.3 Self Assessment

The inspectors reviewed the methods used by the licensee to perform self assessments of engineering support and the design change process. Three different groups had responsibility for the performance of portions of the licensee's self assessment of engineering. These groups were 1) Nuclear Quality Programs (NQP), 2) On-site Nuclear Safety Group (ONSG), and 3) Off-site Review Group (ORG).

- Nuclear Quality Programs -- Records indicated that NQP performed periodic audits of engineering activities. The inspector reviewed documentation of several recent NQP audits of engineering activities. Performance based audit training was provided to NQP staff. Before performing an audit in a specialized area, individual auditors were required to be qualified in that particular area. In addition, individuals with special skills were sometimes used as auditors to provide needed expertise in critical areas. Based on the records reviewed, the audits performed appeared to be performance based and were considered good.

  NQP also performed field monitoring (surveillances) of engineering and other plant activities. Field monitor reports (FMRs) provided good on-going assessments of plant engineering and other plant activities. Records indicated that NQP had completed more than 100 field monitoring activities on selected plant activities each month. The inspector reviewed a sample of engineering related FMRs. Based on the records reviewed, field monitoring was considered to be performance based and was considered good.

  In support of these assessment activities, there was good communication between the CECo Plant NQP personnel and corporate NQP. The groups had established a morning conference call to expedite the notification and resolution of significant nuclear safety issues.

- On-site Nuclear Safety Group and Off-site Review Group -- Since the ONSG and the ORG had similar functions, these groups are discussed together. The ONSG and the ORG performed good assessments of plant engineering safety issues. Both groups were proactive with special reviews to better assess specific plant areas or control. For example, the ONSG recently performed a study of shutdown risk and had issued a report to plant management. One other project, undertaken by the ONSG, was the trending of engineered safeguards system performance monitoring. This evaluation process was still under development and no report had been issued.

The ORG contributed to the independent assessment of the plant. The CECo pressurized water reactor ORG consisted of three people who performed assessments on significant plant issues for Braidwood, Byron, and Zion. This assessment included a review of the events and the plant personnel's assessment of root causes for the events. The group provided feed back to the plant on any assessments where problems or concerns were noted. An example of work improvement due to ORG action was a recommendation that a closer review be initiated to determine if 10 CFR 50.59 reviews were required prior to actual performance of the reviews. As a result the number of 50.59 reviews was reduced and off site review group personnel stated that, because of this recommendation, the 50.59 reviews issued during the past year had improved in quality.

Based this review, the inspectors concluded that licensee assessments were adequate and were used to improve engineering activities.

4.0 Exit Meeting

At the conclusion of the inspection, an exit discussion was held at the Braidwood Nuclear Power Station on June 12, 1992, and a supplemental exit discussion was held at the Station on June 25, 1992, with the licensee representatives denoted in Section 1, to summarize the purpose, scope, and findings of the inspection. The inspectors discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee identified Sargent and Lundy Instruction PI-BB-512 as proprietary. No other proprietary documents or information were identified.