U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-454; 50-455
License Nos:	NPF-37; NPF-66
Report Nos:	50-454/98003(DRS); 50-455/98003(DRS)
Licensee:	Commonwealth Edison Company
Facility:	Byron Nuclear Generating Plant, Unit 1 and 2
Location:	4448 North German Church Road Byron, IL 61010-9750
Dates:	January 8-12, 1998, onsite January 23-27, 1998, Region III Office
Inspector:	G. Pirtle, Physical Security Inspector
Approved by:	James R. Creed, Chief, Plant Support Branch 1 Division of Reactor Safety

EXECUTIVE SUMMARY

Byron Nuclear Generation Plant
NRC Inspection Reports 50-454/98003; 50-455/98003

This inspection included a review of the security measures implemented to support the Steam Generator Replacement Project. It was an announced inspection conducted by a regional physical security specialist.

General security support for the Steam Generator Replacement Project was very good. Overtime demands for the security force were challenging but effectively monitored by the security staff. Compensatory measures, except as noted below, were properly implemented. Loggable security events were not excessive, and the general workforce demonstrated a good understanding of security responsibilities.

- An unresolved item was identified pertaining to the adequacy of compensatory measures implemented for a section of the vehicle barrier system (Section S3.b.1).

- An unresolved item was identified pertaining to the adequacy of alarm system testing when two alarm zones were returned to service (Section S3.b.2).

- An Inspection Followup Item was identified pertaining to a weakness in some access control measures at the Main Access Facility (Section S3.b.3).

Report Details

IV. Plant Support

S2 Status of Security Facilities and Equipment

a. Inspection Scope (81700)

The inspector reviewed the condition of security equipment and facilities required by the security plan. The equipment observed included, but was not limited to, search equipment, intrusion alarm equipment, alarm assessment equipment, equipment within the secondary alarm station (SAS) and Main Access Facility (MAF), and temporary facilities in use for compensatory measures to support the Steam Generator Replacement Project (SGRP).

b. Observations and Findings

Search equipment at the MAF and equipment at the SAS functioned as designed. Security force personnel evaluated had the required communication equipment and weapons, if necessary.

c. Conclusions

Security equipment observed during the inspection functioned as designed and compensatory measures for equipment failure were seldom required.

S3 Security and Safeguards Procedures and Documentation

a. Inspection Scope (50001 and 81064)

The inspector reviewed selected procedures pertaining to the areas inspected and also reviewed appropriate logs, records, and other documents pertaining to security support for the Steam Generator Replacement Project. Emphasis was on security considerations associated with vital and protected area barriers that may be affected during the steam generator replacement project.

b. Observations and Findings

Procedures reviewed were generally well written. Security Officers at compensatory security posts evaluated by the inspector had adequate post instructions and the personnel were familiar with the post requirements. Two unresolved items and an Inspection Followup Item were identified while reviewing security procedures and documentation. These issues are addressed below.

b.1 Section 5.2.1.1 of the Byron Station security plan states that the vehicle barrier system (VBS) meets the requirements of 10 CFR 73.55(c)(7) and (8), and also commits to compensatory measures for degraded portions of the VBS equivalent to those identified

in Nuclear Energy Institute (NEI) Document 96-01 "Guidelines For Operational Planning and Maintaining Integrity of Vehicle Barrier Systems (VBS)", dated February 1996. Section 6.1.2 of NEI Document 96-01 allows a security officer with a contingency weapon to compensate for a degraded vehicle barrier for a "short period of time", which is defined as no more than 72 hours in Section 3.12 in NEI Document 96-01.

The inspector's review of documentation of compensatory measures noted that a security officer with a contingency weapon was used to compensate for an approximately 30 foot degraded portion of the VBS from December 8-21, 1997. The compensatory measures were in effect to allow fence and VBS removal for exit of the old steam generators. When discussed with the licensee security staff, their position was that three unanchored jersey barriers were in position during this period and that the unanchored barriers were adequate temporary barriers as described in NEI Document 96-01, and therefore an armed officer was not even necessary for the degraded VBS. Both options for passive VBS barriers were allowed by the licensee's procedure (Sections 5.3.2.a and b of procedure CNSO No. 4, Revision 1, "Operational Planning and Maintaining Integrity of Vehicle Barrier Systems", dated August 1996).

The jersey barriers in question were initially anchored (and an adequate VBS) and then unanchored for 12 days (which caused an inadequate VBS) solely because of the licensee's actions (removing the anchor pins). Additionally, the initial analysis of the VBS when installed concluded that the jersey barriers had to be anchored to be an effective VBS.

We are unsure if the compensatory measures implemented are adequate, although they did comply with the licensee's procedure. It appears that for periods greater than 72 hours, adequate compensatory measures would have required more substantial barriers. Section 73.55(g)(1) of 10 CFR Part 73 requires that compensatory measures not reduce the effectiveness of the security system. It appears that placing a guard with a contingency weapon for an extended period of time, and using unanchored jersey barriers, reduces the effectiveness of the VBS below the standard required by 10 CFR 73.55(c)(7).

The unresolved items are (1) can a security officer with a contingency weapon compensate for a degraded VBS for more than 72 hours, and (2) were the compensatory measures implemented between December 8-21, 1997, adequate if the VBS degradation was the result of licensee preplanned actions which resulted in the VBS not meeting the criteria of 10 CFR 73.55(c)(7), and an analysis showed that the barriers had to be anchored to be effective? Or should other temporary barriers (e.g. vehicles of sufficient size and mass) been used as compensatory measures to have an adequate VBS. This issue will be forwarded to NRC Headquarters for review, and resolution of the issue will be addressed by separate correspondence (URI 50-454/ 98003-01(DRS); 50-455/98003-01(DRS)).

b.2 10 CFR 73.55(g)(2) requires each intrusion alarm to be tested for performance at the beginning and end of any period that it is used for security. Section 2.b of NRC Regulatory Guide 5.44, "Perimeter Intrusion Alarm Systems", which the Introduction to

the Byron Security Plan states was used for guidance, recommends that inoperative alarm zones be tested upon return to service against manufacturer's specifications and detection probability to include line supervision and tamper testing. Section 13.2 of the Byron Security Plan states an alarm zone will be "functionally tested" when placed into service. However, only two types of alarm system testing are described in the security plan. One of the tests is a weekly test for alarm systems in continuous use; the other test (which includes tamper and line supervision testing) is for annual testing purposes. On December 21, 1997, alarm zones 23 and 24 were placed back into service from an inoperative state. A test was not performed before taking the zones out of service, and only a single alarm test, which did not include tamper and line supervision testing, was performed on each zone when returned to service. This test methodology was the same test procedure performed for alarm zones in continuous use for seven or more days. The unresolved item is if such testing was adequate for returning an inoperative alarm zone to service. This issue will be forwarded to NRC Headquarters for review, and resolution of the issue will be addressed by separate correspondence (URI 50-454/98003-02(DRS); 50-455/98003-02(DRS)).

b.3 On some occasions, for short periods of time (two minutes or less), the emergency control was not available at one recently established location because the structure with the emergency capability was not manned. The security supervisors were not aware of the need to continuously man the location which acted as the final access point to the protected area. (IFI 50-454/98003-03(DRS); 50-455/98003-03(DRS)).

This issue is of minor safety significance because of the few times the incident occurred and the short time periods involved. Of greater significance was the identified need to carefully evaluate all security responsibilities assumed when a new security post is established. Additionally, the security supervisors were apparently unfamiliar with the need to implement additional requirements (continuously man a specific location) when the new security post was established.

c. Conclusions

Security procedures reviewed were generally well written. Records reviewed were accurate and complete. Unresolved items were noted for compensatory measures implemented for a degraded portion of the VBS, and testing procedures for alarm zones returned to service. An Inspection Followup Item was noted for not recognizing a new security requirement when a new security post was established.

S4 Security and Safeguards Staff Knowledge and Performance

a. Inspection Scope (50001 and 81700)

The inspector toured various security posts, including the secondary alarm station and Main Access Facility, and compensatory posts for the Steam Generator Replacement Project. The inspector also observed performance of duties to determine if the security officers were knowledgeable of post requirements. Security event logs and other records pertaining to security force performance were also reviewed.

b. Observations and Findings

The overall security support for the steam generator replacement project was very good. Compensatory measures, except as noted earlier, were properly implemented. Approximately eight or nine compensatory measures were required on a continuous basis because of other work requiring compensatory measures being performed. The support was provided without having to change shift schedules, or cancel scheduled vacations. The overtime for the security force was demanding, but managed well. There were only two occasions when a security officer exceeded 72 hours in a seven day period, and both occasions were for only one hour. Both overtime deviations were documented. Security personnel interviewed stated that they were not normally called in on scheduled days off for overtime. In spite of the demands, the security training section was able to fulfill training requirements for approximately 38 newly hired security officers since May 1997.

Loggable security events were not excessive, considering the number of contractors onsite for the project, which was indicative of a workforce aware of their security responsibilities. In 11 of the last 12 months (January - December 1997), loggable security event goals were met even with the large number of contractors onsite. Only one reportable security event was made during the Steam Generator Replacement Project (This event pertained to a visitor escort violation which has been cited in Inspection Reports No. 50-454/97020; 50-455/97020, dated December 4, 1997).

During observation of site ingress practices on January 9, 1998, it was very evident that personnel entering the site were thoroughly familiar with ingress procedures, and security personnel adequately controlled the ingress process. Few physical searches were required and handcarried items were searched when appropriate. A medical emergency occurred at the Main Access Facility during observation of site ingress. The security force responded appropriately to support emergency personnel responding to the incident. Personnel were adequately controlled and redirected from the access facility in such a manner as not to cause interference with the aid being provided.

Security staffing levels for support of the SGRP were reviewed and determined to be adequate. Security officers checked on compensatory posts had proper post orders. Documentation reviewed was complete and accurate.

c. Conclusions

Security force members were knowledgeable of post requirements and performed their duties in an adequate manner. Security force support was well managed, and the plant population demonstrated a high level of awareness and compliance with security requirements.

X1 Exit Meeting Summary

The inspector presented the onsite inspection results to members of the licensee management at the conclusion of the onsite inspection on January 12, 1998. The licensee acknowledged the findings presented. The persons present were advised that review of procedures and other documents would be completed in the Region III Office. During the initial onsite exit meeting, those present were advised that the compensatory measures for the VBS (Section S3.b.1) may be a violation. After review of the issue in the Region III office, it was determined that the issue would be addressed as an unresolved item. The Site Security Administrator was advised on January 27, 1998, that the document review had been completed and no new issues or concerns were noted, and that the compensatory measure issue was being reviewed as an unresolved item.

The inspector asked the licensee if any inspection findings discussed during the exit meeting should be considered as proprietary or safeguards information. No proprietary or safeguards information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee:

J. Bowers, Assistant Station Security Administrator
D. Brindle, Regulatory Assurance Supervisor
R. Cassidy, Assistant Station Security Administrator
R. Colglazier, NRC Coordinator
D. Hoffman, Site Quality Verification
K. Kofron, Station Manager
M. Mareth, Force Manager, BISSI
S. Meyers, Maintenance Administrator, BISSI
S. Mills, Station Security Administrator
D. Minor, Operations Supervisor, BISSI
R. Morley, Nuclear Security Administrator
T. Schuster, Quality Assurance Manager

NRC

N. Hilton, Resident Inspector, NRC Region III

INSPECTION PROCEDURES USED

IP 50001	Steam Generator Replacement Inspection
IP 81064	Compensatory Measures
IP 81700	Physical Security Program For Power Reactors

ITEMS OPENED

Opened

50-454/98003-01	URI	Adequacy of Compensatory Measures For The Vehicle Barrier System (Section S3.b.1)
50-455/93003-01	URI	Adequacy of Compensatory Measures For The Vehicle Barrier System (Section S3.b.1)
50-454/98003-02	URI	Adequacy of Alarm System Testing When Returned to Service (Section S3.b.2)
50-455/98003-02	URI	Adequacy of Alarm System Testing When Returned to Service (Section S3.b.2)
50-454/98003-03	IFI	Access Control Problem (Section S3.b.3)
50-455/98003-03	IFI	Access Control Problem (Section S3.b.3)

LIST OF ACRONYMS USED

BISSI	Burns International Security Services, Inc.
IFI	Inspection Followup Item
MAF	Main Access Facility
URI	Unresolved Item
SAS	Secondary Alarm Station
SGRP	Steam Generator Replacement Project
VBS	Vehicle Barrier System

PARTIAL LISTING OF DOCUMENTS REVIEWED

Security Event Log From May 1, 1997 to December 31, 1997

Byron Administrative Procedure 100-7, Revision 11, "Overtime Guidelines For Personnel", approved November 6, 1997

Byron Site Policy Memo No. 1006, Revision 6, "Station Overtime Restrictions", dated November 7, 1994

Two Overtime Deviation Authorizations, dated December 2, 1997

Byron Post Order for Station 6, "Weekly Barrier Verification", Revision 6, dated March 11, 1997

Problem Identification Form No. P1998-00115, dated January 8, 1998, pertaining to a prohibited item brought into the Protected Area

Burns International Security Training Record - Parts 1 and 2, Revision 2, dated January 16, 1995, for 15 Newly Hired Security Officers

Byron Station Security Performance Trending Report for November 1997

Corporate Nuclear Security Guideline No. 4, Revision 1, "Operational Planning and Maintaining Integrity of Vehicle Barrier Systems", dated August 1996

Corporate Nuclear Security Guideline No. 1, Revision 11, "Reporting and Recording Security Events", dated June 1997

Byron Steam Generator Replacement Security White Paper, Undated

Burns International Security Services Incident Report, dated December 19, 1997, with Zone 23 and 24 Alarm History for December 21, 1997

Burns Interoffice Memorandum, "Testing Guidance", dated August 25, 1997