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Licensee: GPU Nuclear, Inc. (GPUN)

Facility: Three Mile Island Station, Unit 1

Location: P. O. Box 480
Middletown, PA 17057

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EXECUTIVE SUMMARY

Three Mile Island Nuclear Power Station
Report No. 50-289/98-05

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers an eight week period of resident inspection; in addition, it includes the results of an announced inspection by a regional inspector in the area of safeguards.

GPU Nuclear (GPUN) operated Three Mile Island Unit 1 (TMI) safely, at 100% power throughout the inspection period.

Operations

Operators performed routine activities well. Operators remained focused on equipment operations and used alarm response procedures properly. (Section 01)

Plant operators performed well during observed routine rounds and log taking and during performance of quarterly engineered safeguards surveillance testing. (Section 04.1)

With respect to the corrective action program (CAP): (Section 07.1)

- The plant staff appropriately used the CAP to identify issues.
- The management review team functioned well, providing a multi-disciplined format for review and significance determination of new issues.
- The CAP Monthly Data Presentation provided useful insight into the working of the process.
- Closure and trending of non-significant CAPs that do not require corrective actions were appropriate.

The GPUN identified and corrected the inability of two fire dampers in the engineered safety feature fuel handling building ventilation system to close, as documented in licensee event report 98-005, Revision 00 and 01. (Section 08.1)

Maintenance

GPUN conducted the overhaul and inspection of the station blackout diesel generator in accordance with approved procedures. The risk assessment for this activity properly coordinated the work and provided additional awareness of the need to maintain the availability of offsite power sources. Inspection results showed the engine to be in good condition. GPUN was evaluating procedure changes to reduce the build-up of lubricating oil on engine components. (Section M1.1)

Instrument and control personnel properly used the CAP to identify makeup tank (MUT) level instruments with as-found values outside the procedure acceptance criteria during calibration. (Section M2.1)

In May 1997, GPUN did not properly assess the possible impact on makeup pump (MUP) operability, of known static pressure errors in the calibration of the MUT level instruments nor was the condition corrected until August 1998. Problems appeared with tracking open commitments to correct the errors and with the failure to implement revised instrument calibrations in a timely manner following setpoint calculation changes. This issue will be considered with another MUT pressure/level concern discussed in NRC Inspection Report 98-06 as an apparent violation, in the determination of the overall effect on MUP operability. (Section M2.1)

Review of the MUT pressure/level instrumentation setpoint calculation with respect to instrument inaccuracy and its application to the MUT pressure/level curve appeared proper. However, there was one minor enhancement that would improve operator knowledge and ability to ensure protection of the MUPs with a disabled process computer. (Section M2.1)

Engineering

The engineering organization continued to provide good support to routine plant operation, including attendance and support at morning and afternoon staff meetings, and to the management review team and the plant review group. (Section E1)

Using the CAP, GPUN appropriately identified and responded to two offsite power design basis issues identified during an update to the voltage study analysis. Specifically, the safety-related 4 KV buses would not remain powered from the offsite source under specific conditions, and as a result, would be reenergized by the emergency diesel generators. GPUN planned to submit one LER dealing with both of these issues, which will be reviewed in a subsequent report. (Section E2.1)

Plant Support

During routine plant tours no negative radiological control issues were identified. (Section R1)

GPUN conducted security and safeguards activities in a manner that protected public health and safety in the areas of access authorization, alarm stations, communications, and protected area access control of personnel, packages, and vehicles. This portion of the program, as implemented, met the licensee's commitments and NRC requirements. (Section S1)

The security facilities and equipment in the areas of protected area assessment aids, protected area detection aids, and personnel search equipment were well maintained, reliable, and met the licensee's commitments and NRC requirements. (Section S2)

GPUN maintained and tested the vehicle barrier system in accordance with the security plan based on a walkdown and review of security maintenance, and equipment testing documentation. (Section S2)

Security and safeguards procedures and documentation were properly implemented. Event Logs were properly maintained and effectively used to analyze, track, and resolve safeguards events. (Section S3)

The site protection officers adequately demonstrated requisite knowledge necessary to effectively implement the duties and responsibilities associated with their position. (Section S4)

The level of management support was adequate to ensure effective implementation of the security program, and was evidenced by adequate staffing levels and the allocations of resources to support programmatic needs. (Section S6)

The review of the audit program indicated that the audits were comprehensive in scope and depth, that the audit findings were reported to the appropriate level of management, and that the program was properly administered. In addition, a review of the documentation applicable to the self-assessment program indicated that the program was effectively implemented to identify and resolve potential weaknesses. (Section S7)

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Report Details

Summary of Plant Status

GPU Nuclear (GPUN) operated Three Mile Island Unit 1 (TMI) safely, at 100% power throughout the inspection period.

I. Operations

01 Conduct of Operations (71707)

Operators performed routine activities well over the period. Operators remained focused on equipment operations and used alarm response procedures properly.

04 Operator Knowledge and Performance

04.1 General Operator Performance

a. Inspection Scope (71707, 61726)

The inspectors observed operations personnel during several different conditions including; performance of routine rounds and log taking, and performance of quarterly emergency safeguards (ES) surveillance testing.

b. Observations and Findings

Control room and auxiliary operators performed well during the observed activities.

- Auxiliary operators were found to be knowledgeable of plant conditions and equipment operation during observed rounds in the auxiliary and intermediate buildings. Routine logs and readings were taken and documented in accordance with GPUN procedures.
- Operators performed well during conduct of quarterly ES surveillance testing, conducted in accordance with procedure 1303-5.2, "Emergency Loading Sequence and High Pressure Injection Logic Channel / Component Testing." During conduct of the test, operators observed that the "A" nuclear river (NR) pump (NR-P-1A) discharge isolation valve (NR-V-1A) did not automatically open as required when the pump was started. NR-P-1A was subsequently declared inoperable and a work request was generated to investigate the problem. A faulty electrical coil was found in the NR-V-1A opening circuit. The coil was replaced and NR-V-1A and NR-P-1A were satisfactorily retested and returned to service.

c. Conclusions

Plant operators performed well during observed routine rounds and log taking and during performance of quarterly ES surveillance testing.

07 Quality Assurance in Operations

07.1 Corrective Action Process - Management Review Team Meetings and Data Review

a. Inspection Scope (40500)

The inspectors observed the majority of the management review team (MRT) meetings conducted after the 6:30 morning meeting and assessed management involvement in discussion of corrective action process (CAP) issues.

The inspectors also reviewed the CAP Data Presentation for the period through July 1998.

b. Observations and Findings

The MRT meetings attended met the program requirements as defined in the CAP procedure for giving issues a balanced interdisciplinary review including operations, maintenance, and engineering supervisors and managers.

Management discussion and determination of significance, and the required additional reviews to determine root causes and corrective action appeared appropriate.

MRT actions to trend non-significant CAPs that do not require corrective actions were appropriate and have reduced the overall input rate to allow focus on more important issues, while allowing trending.

The CAP Data Presentation provided good insight into the working of the process over a twelve month period including statistics on: the overall numbers generated and their significance, the backlog and work-off rate for CAP reviews and corrective actions, and late responses and pending escalations of open issues.

The July report showed that the CAP closure rate was greater than the input rate indicating that the program was able to keep up with the inflow; however, the corrective actions completion rate versus generation rate indicated an increasing backlog.

c. Conclusions

With respect to the CAP:

- The plant staff appropriately used the CAP to identify issues.
- The MRT functioned well, providing a multi-disciplined format for review and significance determination of new issues.
- The CAP Monthly Data Presentation provided useful insight into the working of the process.

- Closure and trending of non-significant CAPs that do not require corrective actions were appropriate.

08 Miscellaneous Operations Issues

08.1 Licensee Event Report Review

a. Inspection Scope (71707)

The inspector reviewed the following licensee event report (LER) to ensure that GPUN completed a comprehensive evaluation and took adequate corrective actions.

b. Observations and Findings

(Closed) LER 98-005-00 and 01; Inoperable Spent Fuel Floor Ventilation Fire Dampers

Based on on-site inspection, GPUN took appropriate actions to investigate, analyze, and correct a condition where the two, in series, fire dampers, for the engineered safety feature fuel handling building ventilation (ESFFHBV) system were not operable to close. These dampers are designed to close in the unlikely event of an airplane crash near the FHB, which could cause flammable gas to enter the spent fuel floor area. The spent fuel pool area contains no safety-related equipment and the ESFFHBV system is only required to be operable during fuel movement.

This failure to ensure the ability of the fire dampers to close constitutes a violation of minor significance and is not subject to formal enforcement action.

c. Conclusion

GPUN identified and corrected the inability of two fire dampers in the ESFFHBV to close, as documented in LER 98-005, Revision 00 and 01.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Major Inspection and Overhaul of Station Blackout Diesel Generator

a. Inspection Scope (61726)

The inspector observed selected maintenance activities conducted during the scheduled major inspection of the station blackout diesel generator (EG-Y-4). This included reviews of job order packages and observations of mechanical, electrical, and instrumentation and control maintenance activities.

b. Observations and Findings

The inspection of EG-Y-4 showed the engine to be in good condition. Maintenance personnel performed preventive and corrective maintenance items on the engine in accordance with GPUN procedures. No deficiencies were identified.

During conduct of the pre-inspection run, it appeared that an excessive amount of diesel lubricating oil had accumulated in the engine since the previous run. This was evidenced by blue-grey smoke issuing from the exhaust manifold during operation. GPUN evaluated this condition and concluded the cause to be periodic pre-lubrication of the engine without subsequent operation. Operators periodically pre-lubricated the engine to ensure its availability for emergency operation. GPUN was evaluating the need to periodically pre-lubricate the engine and instead require the engine to be pre-lubricated prior to operation.

c. Conclusion

GPUN conducted the overhaul and inspection of the station blackout diesel generator in accordance with approved procedures. The risk assessment for this activity properly coordinated the work and provided additional awareness of the need to maintain the availability of offsite power sources. Inspection results showed the engine to be in good condition. GPUN was evaluating procedure changes to reduce the build-up of lubricating oil on engine components.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Makeup Tank Level Instrumentation Issues: (Open) EEI 98-05-01; Inadequate Assessment and Correction of Makeup tank Level Instrument Static Pressure Errors

a. Inspection Scope (62707)

GPUN initiated a CAP on August 26, which stated that the two makeup tank (MUT) level instruments (MU-14-LT and MU-LT-778) had been found outside their as-found calibration bands during an instrument calibration. The instruments read high with respect to actual level. The inspectors reviewed the surveillance test data to determine the effect on instrument readings, discussed the issue with GPUN engineering, determined the effect on the MUT pressure/level (P/L) curves; and reviewed the instrument setpoint calculations and assumptions used to generate the curves. Operators use the curves to control MUT P/L within established limits to prevent gas entrainment to the makeup pump (MUP) suction and for ensuring adequate MUP net positive suction head (NPSH). The inspectors coordinated this review with the design team follow-up inspection conducted in August 1998, and documented in NRC Inspection Report 98-06.

b. Observations and Findings

Instrumentation and controls (I&C) personnel properly used the CAP to identify as-found transmitter calibration readings outside the procedure acceptance criteria.

The inspector found, in review of the as-found calibration data, that each transmitter read consistently high over the calibration band, with respect to actual input signals. This was due to a shift in the height adjustment made for instrument physical location relative to the common instrument tap (0.0" reference) on the MUT. Prior to the calibration, control room indication and computer points fed from these transmitters read higher than actual MUT level (approximately 3" for the MU-14-LT and 1.3" for the MU-LT-778.)

GPUN made an incorrect assumption, in May 1997, on how known MUT level transmitter static pressure correction errors would affect the MUT P/L curves.

- In plant review group (PRG) meeting minutes from May 2, 1997, GPUN discussed the issue of these level instruments reading high with respect to actual level due to inaccurate instrument height measurements. GPUN incorrectly assumed that this would have the effect of lowering available MUP NPSH and that this minor short fall would not have any substantial effect.
- In review, the inspectors determined that based on the MUT being a constant volume pressurized tank, assuming isothermal expansion that a lower than indicated level would actually benefit NPSH, since there would be a larger volume of gas above the water, leading to a higher pressure for any given decreased tank level. Conversely, the effect would be less conservative for the gas entrainment curve, since this would lead to a higher pressure for an empty tank, leading to the possibility of forcing hydrogen into the MUP suction header.
- GPUN engineering acknowledged that they had not properly analyzed the instrument height shift in the May 1997 PRG meeting.
- The PRG met on this topic and GPUN determined that they would address the effect of this error and document it as part of the LER already planned for another MUT P/L curve issue, identified in August 1998 during the engineering design team review (NRC Inspection Report 98-06.)

The inspector found that GPUN did not resolve a known issue dealing with the MUT level instrument static pressure correction for over one year. There appeared to be problems with the controls over a PRG open issue and the calibration of instruments following revision to setpoint calculations to ensure that assumed instrument accuracies were properly accounted for, as follows:

- The May 2, 1997, PRG minutes stated that the transmitter height effects should be corrected before the next calibration scheduled within several weeks of May 1997.
- I&C personnel completed information gathering on actual MUT level instrument height with respect to the instrument tap (0.0" reference) and

documented the new head corrections in an e-mail dated May 21, 1997. GPUN used a laser transit to ensure the accuracy of this measurement.

- Between May 1997 and August 1998, GPUN implemented three revisions to MUT level instrument setpoint calculation C-1101-624-5350-002, Rev 3, dated July 31, 1997, and did not include the static pressure shift. Rev 4, dated April 8, 1998, included the static shift as did Rev 5, dated May 18, 1998.
- GPUN implemented new MUT P/L curves following the Fall 1997 outage in accordance with Calculation C-1101-211-E610-066, Rev 0. This calculation was based on Rev 3 to the setpoint calculation. Subsequent to issuance of Rev 5 to the setpoint calculation the P/L curves were changed to reflect new assumed instrument inaccuracies. The static pressure shift was included in the setpoint calculation, but it remained as an unaccounted for inaccuracy on the curves, since it was assumed that the instruments were calibrated to meet the setpoint calibration.
- Part of the basis for allowing the MUP suction header to be cross-tied, also implemented following the Fall 1997 outage, included an assumption of proper MUT level instrument calibration, as documented in Section 2.1.5 of Safety Evaluation 00211-015, dated August 18, 1997.
- Revision 20 to I&C procedure 1302-5.17 MUT level instrument calibration was issued on June 12, 1998, and included the new static shift in the instruments. GPUN did not complete this procedure until August 1998.

The inspectors considered the failure of GPUN to correct the static pressure calibration of the MUT level instruments and its overall affect on the MUT P/L curves an apparent violation of 10 CFR 50, Appendix B, Criterion XVI and 10 CFR 50.59, since assumptions for opening of the MUP suction cross-tie valves assumed correct level instrument calibration. This issue will be combined with another MUT P/L issue discussed in NRC Inspection Report 98-06, so that the overall effect of these errors may be addressed. **(Escalated Enforcement Item (EEI) 50-289/98-05-01)**

Review of the setpoint calculation with respect to instrument inaccuracy and its application to the MUT P/L curve appeared proper. However, there was one minor enhancement that would improve operator knowledge and ability to ensure protection of the MUPs with a disabled process computer.

- The MUT P/L curve calculation assumed a level instrument loop inaccuracy of +/- 1.5" for the computer point feed from MU-LT-778. This appeared to be conservative (greater than the setpoint calculation inaccuracies for the computer points fed from each of the two level instruments).
- The inaccuracies of the computer point were the lowest of any indicator in either instrument loop.

- Use of the computer points to ensure MUT P/L within the curve was acceptable. Although the curves did not clearly state that the computer points should be used, neither did the curve indicate the additional inaccuracies that would need to be applied if panel instruments were being used vice the computer points.

The GPUN system engineer was pursuing corrective actions to account for the use of other less accurate MUT level instruments.

c. Conclusion

I&C personnel properly used the CAP to identify MUT level instruments with as-found values outside the procedure acceptance criteria during calibration.

In May 1997, GPUN did not properly assess the possible impact on MUP operability, of known static pressure errors in the calibration of the MUT level instruments nor was the condition corrected until August 1998. Problems appeared with tracking open commitments to correct the errors and with the failure to implement revised instrument calibrations in a timely manner following setpoint calculation changes. This issue will be considered with another MUT pressure/level concern discussed in NRC Inspection Report 98-06 as an apparent violation, in the determination of the overall effect on MUP operability.

Review of the MUT P/L instrumentation setpoint calculation with respect to instrument inaccuracy and its application to the MUT P/L curve appeared proper. However, there was one minor enhancement that would improve operator knowledge and ability to ensure protection of the MUPs with a disabled process computer.

III. Engineering

E1 Conduct of Engineering (37551)

The engineering organization continued to provide good support to routine plant operation, including attendance and support at morning and afternoon staff meetings, and to the MRT and the PRG.

E2 Engineering Support of Facilities and Equipment

E2.1 Auxiliary Transformer Degraded Bus Voltage Analysis

a. Inspection Scope (37551)

The inspector reviewed GPUN's identification and corrective actions for problems with the offsite power transformer loading calculations.

GPUN was completing these calculation upgrades as part of corrective actions for a previous issue where controlled design basis calculations did not exist for the loading on the offsite power system.

b. Observation and Findings

The engineering department properly used the CAP to document design deficiencies with the offsite power sources, identified during calculation generation. GPUN identified and properly reported two issues:

- On August 25, GPUN identified a situation where operation with a single offsite power source, and an ES actuation could cause a complete loss of offsite power (LOOP) to the safety-related 4 KV buses. The cause of this issue was previously incorrect assumptions for the impedance of the bus duct between the auxiliary transformers and the 4 KV safety-related buses.

In this condition, the starting of the ES pumps on the single auxiliary transformer, could cause the 4 KV degraded grid relays to pick up, causing the associated buses to separate from the auxiliary transformer and the emergency diesel generator (EDGs) to re-energize the loads.

- On September 16, GPUN identified a situation where a loss of one offsite power source, with the unit operating at 100% power with assumed maximum balance of plant electrical loading and minimum expected offsite grid voltage, could result in a complete LOOP to the safety-related 4 KV buses.

In this condition upon loss of one offsite source, the one safety-related bus normally powered from that source would be reenergized by its associated EDG. However, the automatic transfer of the other balance of plant electrical bus(es), which had been supplied by the lost offsite source, to the other operating source, could result in a voltage drop and the pickup of the undervoltage relays for the other safety-related 4 KV bus and its separation from the energized offsite source. On separation the ES loads would be powered from the other EDG.

GPUN took appropriate corrective actions to address these issues. In the first case operation procedures were changed to ensure that only five of the six circulating water pumps would be operated if one offsite source was supplying both safety-related 4 KV buses. This action would reduce the auxiliary transformer loading and prevent the actuation of the degraded grid relays. In the second case, GPUN concluded that no immediate corrective actions were required since the maximum balance of plant loading would occur during extremely cold weather conditions, below 0°F. Short term corrective actions were to evaluate and, if necessary, revise procedural guidance for monitoring grid voltage and balance of plant electrical loading. Long term corrective actions are to be determined based on the results of further analysis.

GPUN planned to submit one LER dealing with both of these issues. The LER will be reviewed in a subsequent report.

c. Conclusion

Using the CAP, GPUN appropriately identified and responded to two offsite power design basis issues identified during an update to the voltage study analysis. Specifically, the safety-related 4 KV buses would not remain powered from the offsite source under specific conditions, and as a result, would be reenergized by the EDGs. GPUN planned to submit one LER dealing with both of these issues, which will be reviewed in a subsequent report.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls (71750)

During routine plant tours no negative radiological control issues were identified.

S1 Conduct of Security and Safeguards Activities

a. Inspection Scope (81700)

The inspector determined whether the conduct of security and safeguards activities met the commitments in the NRC-approved physical security plan (the Plan) and NRC regulatory requirements. The security program was inspected during the period of August 31 - September 3, 1998. Areas inspected included: access authorization program; alarm stations; communications; protected area (PA) access control of personnel, packages, and vehicles.

b. Observations and Findings

Access Authorization Program. The inspector reviewed implementation of the access authorization (AA) program to verify implementation was in accordance with applicable regulatory requirements and the Plan commitments. The review included an evaluation of the effectiveness of the AA procedures, as implemented, and an examination of AA records for 8 individuals. Records reviewed included both persons who had been granted and had been denied access. The AA program, as implemented, provided assurance that persons granted unescorted access did not constitute an unreasonable risk to the health and safety of the public. Additionally, the inspector verified, by reviewing access denial records and applicable procedures, that appropriate actions were taken when individuals were denied access or had their access terminated. Those actions included the availability of a formalized process that allowed the individuals the right to appeal the decision.

Alarm Stations. The inspector observed operations of the Central Alarm Station (CAS) and the Secondary Alarm Station (SAS) and verified that the alarm stations were equipped with appropriate alarms, surveillance and communications

capabilities. Interviews with the alarm station operators found them knowledgeable of their duties and responsibilities. The inspector also verified, through observations and interviews, that the alarm stations were continuously manned, independent and diverse so that no single act could remove the plants capability for detecting a threat and calling for assistance, and the alarm stations did not contain any operational activities that could interfere with the execution of the detection, assessment and response functions.

Communications. The inspector verified, by document reviews and discussions with alarm station operators, that the alarm stations were capable of maintaining continuous intercommunications, communications with each site protection officer (SPO) on duty, and were exercising communication methods with the local law enforcement agencies as committed to in the Plan.

PA Access Control of Personnel and Hand-Carried Packages. On September 2, 1998, the inspector observed personnel and package search activities at the personnel access portals. The inspector determined, by observations, that positive controls were in place to ensure only authorized individuals were granted access to the PA and that all personnel and hand carried items entering the PA were properly searched.

PA Access Control of Vehicles. On September 1 and 3, 1998, the inspector observed vehicle access control activities at the main vehicle access control entry point. The observations included SPO's verification of vehicle authorization and escort requirements and the performance of vehicle searches prior to granting PA access. The inspector concluded that vehicles were being controlled and maintained in accordance with the Plan and applicable procedures.

c. Conclusions

GPUN conducted security and safeguards activities in a manner that protected public health and safety in the areas of access authorization, alarm stations, communications, and protected area access control of personnel, packages, and vehicles. This portion of the program, as implemented, met the licensee's commitments and NRC requirements.

S2 Status of Security Facilities and Equipment

a. Inspection Scope (81700)

Areas inspected were PA assessment aids, PA detection aids, personnel search equipment and testing, maintenance and compensatory measures.

b. Observations and Findings

PA Assessment Aids. On September 2, 1998, the inspector evaluated the effectiveness of the assessment aids, by observing on closed circuit television, an SPO conducting a walkdown of the PA. The assessment aids had good picture

quality and good zone overlap. Additionally, to ensure the Plan commitments are satisfied, the licensee has procedures in place requiring the implementation of compensatory measures in the event the alarm station operator is unable to properly assess the cause of an alarm.

Personnel and Package Search Equipment. On September 2, 1998, the inspector observed both the routine use and the daily performance testing of the personnel and package search equipment. The inspector determined, by observations and procedural reviews, that the search equipment performs in accordance with procedures and the Plan commitments.

PA Detection Aids. On September 1, 1998, the inspector observed an SPO conducting performance testing of the perimeter intrusion detection system (PIDS). The testing consisted of 13 intrusion attempts in 6 zones, that resulted in the SPO being detected in each intrusion attempt. The inspector determined that the equipment was functional and effective and met the requirements of the Plan.

Testing, Maintenance and Compensatory Measures. The inspector reviewed testing and maintenance records for security-related equipment for the previous three months and found that documentation was on file to demonstrate that the licensee was testing and maintaining systems and equipment as committed to in the Plan. Maintenance records revealed only four current open items none of which required compensatory measures. The records indicate a good working relationship between instrumentation and controls (I&C), maintenance and security as evidenced by the minimal requirement for compensatory measures due to repairs being accomplished in a timely manner.

Vehicle Barrier System. While performing the inspection discussed in this report, Section 10.20 of the Plan, titled "Vehicle Barrier System" was reviewed. The inspector determined, by conducting a walkdown of the vehicle barrier system (VBS) and reviewing security maintenance and equipment testing documentation, that the VBS is being tested and maintained in accordance with the Plan.

c. Conclusions

The security facilities and equipment in the areas of protected area assessment aids, protected area detection aids, and personnel search equipment were well maintained, reliable, and met the licensee's commitments and NRC requirements.

GPUN maintained and tested the vehicle barrier system in accordance with the security plan based on a walkdown and review of security maintenance, and equipment testing documentation.

S3 Security and Safeguards Procedures and Documentationa. Inspection Scope (81700)

Areas inspected were implementing procedures and security event logs.

b. Observations and Findings

Security Program Procedures. The inspector verified that the procedures were consistent with the Plan commitments, and were properly implemented. The verification was accomplished by reviewing selected implementing procedures associated with PA access control of personnel and packages, testing and maintenance of personnel search equipment, and performance testing of PA detection aids.

Security Event Logs. The inspector reviewed the Security Event Log for the previous eleven months. Based on this review, and discussion with security management, it was determined that the licensee appropriately analyzed, tracked, resolved and documented safeguards events that the licensee determined did not require a report to the NRC within 1 hour. Additionally, the inspector noted, during the review of the safeguards event logs, that since the last core inspection conducted in November 1997, log entries associated with personnel errors were minimal.

c. Conclusions

Security and safeguards procedures and documentation were properly implemented. Event Logs were properly maintained and effectively used to analyze, track, and resolve safeguards events.

S4 Security and Safeguards Staff Knowledge and Performancea. Inspection Scope (81700)

Area inspected was security staff requisite knowledge.

b. Observations and Findings

Security Force Requisite Knowledge. The inspector observed a number of SPOs in the performance of their routine duties. These observations included alarm station operations, personnel, package and vehicle searches, and performance testing of the PIDS. Additionally, the inspector interviewed SPOs and, based on the responses, determined that the SPOs were knowledgeable of their responsibilities and duties, and could effectively carry out their assignments.

c. Conclusions

The site protection officers adequately demonstrated the requisite knowledge necessary to effectively implement the duties and responsibilities associated with their position.

S6 Security Organization and Administration

a. Inspection Scope (81700)

Areas inspected were management support, effectiveness and staffing levels.

b. Observations and Findings

Management Support. The inspector reviewed various program enhancements made since the last program inspection which was conducted in November 1997. These enhancements included the allocation of resources for benchmarking initiatives and interface activities with local law enforcement agencies, and the procurement and issuance of new response weapons. Additionally, the licensee is in the process of training three new SPOs to increase the present staffing levels.

Management Effectiveness. The inspector reviewed the management organizational structure and reporting chain and noted that the Site Security Manager's position in the organizational structure provides a means for making senior management aware of programmatic needs. Senior management's positive initiatives to address programmatic concerns is evident by the programmatic improvements as noted in this report.

Staffing Levels. The inspector verified that the total number of trained SPOs immediately available on shift met the requirements specified in the Plan.

c. Conclusions.

The level of management support was adequate to ensure effective implementation of the security program, and was evidenced by adequate staffing levels and the allocations of resources to support programmatic needs.

S7 Quality Assurance in Security and Safeguards Activities

a. Inspection Scope (81700)

Areas inspected were: quality assurance (QA) audits, problem analyses, corrective actions and effectiveness of management controls.

b. Observations and Findings

Audits. The inspector reviewed the 1998 QA audit of the security program, conducted May 27 - August 13, 1998, (Audit No. S-TMI-98-07) and the 1997

QA audit of fitness-for-duty (FFD) program, conducted December 19, 1997 - March 18, 1998, (Audit No. S-COM-97-02). Both audits were found to have been conducted in accordance with the Plan and FFD rule.

The security audit report identified one CAP issue and two minor deficiencies. The security CAP was associated with an information drawing having out of date revisions. The FFD audit identified one CAP issue and no deficiencies. The FFD CAP was associated with the untimely reviews of five procedures. The inspector determined that the findings were not indicative of programmatic weaknesses, and the findings would enhance program effectiveness. Inspector discussions with security management revealed that the responses to the findings were completed, and the corrective actions were effective.

Problem Analyses. The inspector reviewed data derived from the security department's self-assessment program. Potential weaknesses were being properly identified, tracked, and trended.

Corrective Actions. The inspector reviewed corrective actions implemented in response to the QA audits and self-assessment program. The corrective actions were technically sound and were performed in a timely manner.

Effectiveness of Management Controls. The inspector observed that the licensee had programs in place for identifying, analyzing and resolving problems. They include the performance of annual QA audits, a departmental self-assessment program and the use of industry data such as violations of regulatory requirements identified by the NRC at other facilities, as a criterion for self-assessment.

c. Conclusions

The review of the audit program indicated that the audits were comprehensive in scope and depth, that the audit findings were reported to the appropriate level of management, and that the program was properly administered. In addition, a review of the documentation applicable to the self-assessment program indicated that the program was effectively implemented to identify and resolve potential weaknesses.

V. Management Meeting

X1 Exit Meeting Summary

At the conclusion of the reporting period, the resident inspector staff conducted an exit meeting with GPUN management on October 2, 1998, summarizing Unit 1 inspection activities and findings for this report period. No proprietary information was identified as being included in the report.

INSPECTION PROCEDURES USED

IP37551	Onsite Engineering
IP40500	Corrective Actions
IP61726	Surveillance Observations
IP62707	Maintenance Observation
IP71707	Plant Operations
IP71750	Plant Support Activities
IP81700	Physical Security Program for Power Reactors

ITEMS OPENED, CLOSED AND DISCUSSEDOpened:

50-289/98-05-01	EEI	Inadequate Assessment and Correction of Makeup tank Level Instrument Static Pressure Errors (Section M2.1)
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Closed:

50-289/98-005-00,01	LER	Inoperable ESFFHBV Fire dampers (Section O8.1)
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Discussed:

None

LIST OF ACRONYMS USED

AA	Access Authorization
CAP	Corrective Action Process
CAS	Central Alarm System
CFR	Code of Federal Regulations
DH	Decay Heat Removal (ECCS)
DR	Decay Heat River (ECCS)
EDG	Emergency Diesel Generator
EEI	Escalated Enforcement Item
EFW	Emergency Feedwater
ES	Emergency Safeguards
ESF	Engineered Safety Feature
ESFFHBV	Engineered Safety Feature Fuel Handling Building Ventilation
FFD	Fitness-for-duty
GPUN	GPU Nuclear, Inc.
I&C	Instrumentation and Controls
IFI	Inspection Followup Item
INPO	Institute for Nuclear Power Operation
IR	Inspection Report
LER	Licensee Event Report
LOOP	Loss of Offsite Power
MRT	Management Review Team
MUP	Makeup Pump
MUT	Makeup Tank
NPSH	Net Positive Suction Head
NR	Nuclear River
NRC	Nuclear Regulatory Commission
PA	Protected Area
PDR	Public Document Room
PIDS	Perimeter Intrusion Detection System
PMT	Post-Maintenance Test
P/L	Pressure/Level
PRG	Plant Review Group
QA	Quality Assurance
SAS	Secondary Alarm System
SPO	Site Protection Officer
ST	Surveillance Test
the Plan	NRC-approved Physical Security Plan
TM 1	Three Mile Island Unit 1
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VBS	Vehicle Barrier System
WR	Work Request