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PP&L, INC.

CORPORATE AUDIT SERVICES

(INTERIM REPORT)

**INVESTIGATION OF ALLEGATIONS THAT MANAGEMENT
MISREPRESENTED ALARM TEST INFORMATION TO
THE NUCLEAR REGULATORY COMMISSION**

Job Number 739459-97

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MANAGER - CORPORATE AUDIT SERVICES**

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October 15, 1977

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October 15, 1997

Corporate Audit Services (Auditing) conducted an investigation of circumstances and events at the Susquehanna Steam Electric Station (SSES) surrounding various issues alleged by a former Nuclear Plant Operator (NPO). This report focuses on two of the former NPOs concerns. The two concerns are: (1) Management misrepresented alarm test information in an April 9, 1997 letter to the Nuclear Regulatory Commission (NRC); and (2) the former NPO questioned the reliability of computer data associated with NPO testing of the Engineered Safeguard System (ESS) Transformer Alarms.

In the April 9, 1997 letter (see Exhibit A for an excerpt from that letter), the Company stated: *"The NPO's pattern of behavior demonstrated by the performance of surveillances and rounds was found only in a particular activity (routine, repetitive NPO rounds) in a specific location ("E" Diesel Building). Moreover, we found no evidence that these issues were widespread."* The former NPO alleged that this statement was not true and that management knew or should have known (prior to April 9, 1997) about other alarm tests that were not performed. In making this allegation, the former NPO cited the following alarm tests as examples to illustrate his point: (1) Plant Control Operator (PCO) testing of the Control Room Annunciator Panels; and, (2) Auxiliary Systems Operator (ASO) testing of the Radwaste Control Room Offgas Panel alarms. (Corporate Auditing is currently gathering the facts regarding these two alarms and will issue a separate report on this matter.) The former NPO further alleged that Nuclear Management was aware of other alarm tests not being performed by citing an alleged event whereby [] allegedly told [] that PCOs were not testing Control Room Annunciators.

The former NPO also questioned the reliability of computer data associated with NPO testing of the ESS Transformer Alarms. The Company supplied that computer data to the aforementioned [] in February 1997.

The following represents an interim report of our investigation into the above issues. The following objectives are addressed in this interim report:

- determine if (prior to the Company issuing the April 9, 1997 letter to the NRC) Nuclear Management was aware of other alarm tests not being performed;
- determine if [] informed [] about PCOs not performing Control Room Annunciator tests; and,
- determine if NPO testing of the ESS Transformer Alarms was performed as required and review the reliability of associated computer data.

See Exhibit B for a list of personnel interviewed in connection with this investigation.

EXECUTIVE SUMMARY

APRIL 9, 1997 LETTER TO THE NRC AND MANAGEMENT AWARENESS OF OTHER MISSED ALARM TESTS

We found no evidence that the Nuclear Department Management personnel involved in developing and reviewing the April 9, 1997 letter to the NRC had any knowledge of other missed alarm tests as of April 9, 1997. Furthermore, the evidence we obtained indicates that Management generally relied on a Nuclear Assessment Services (NAS) Quality Assurance Surveillance of approximately 125,000 individual tasks (performed by Nuclear Operations, Maintenance, Fire Protection, Security, and Health Physics) to substantiate the basis for making the two statements made in the April 9, 1997 letter.

[] denied that they had a conversation regarding PCOs not testing Control Room Annunciators. Additionally, the [] denied having any knowledge (as of April 9, 1997) of PCOs not testing the Control Room Annunciators.

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ESS TRANSFORMER ALARM TESTS AND RELIABILITY OF COMPUTER DATA

The Unit 1 computer data supplied by the Company to [] did not reliably record the NPOs performance of ESS Transformer Alarm Tests. The Unit 1 computer monitors computer points associated with the ESS Transformer Alarms at a slow speed, therefore, it did not reliably demonstrate NPOs performance of the alarm tests. The Unit 2 computer provides a reliable record of NPO tests of at least two of the four ESS Transformer Alarms. A review of Unit 2 computer data performed by Nuclear Operations (and reviewed by Auditing) indicated that NPOs were testing at least two of the ESS Transformers during the period January 1996 through July 1996. Due to the Unit 2 computers inability to record computer points associated with the other two ESS Transformers, we were unable to obtain conclusive evidence that NPOs tested those Alarms.

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ACTION PLAN

In performing the investigation, Auditing took various actions including:

- interviewing persons involved in the drafting, reviewing, and issuing of the April 9, 1997 letter to the NRC;
- obtaining and analyzing computer data associated with the ESS Transformer Alarm tests;
- obtaining and reviewing Nuclear Operation's report (and supporting documentation) on the reliability of ESS Transformer computer points and associated computer data;
- interviewing other relevant personnel including [];
- analyzing information obtained; and,
- developing conclusions.

APRIL 9, 1997 LETTER TO THE NRC AND MANAGEMENT AWARENESS OF OTHER MISSED ALARM TESTS

Background

At the March 21, 1997 NRC Enforcement Conference, the Company presented to the NRC its response to various events which occurred at SSES. The events included the 'E' Diesel Generator Misalignment, NPO Testing of the 'E' Diesel 0C577E Alarm, [] performance of General Station Inspections, and [] performance of Preventative Maintenance Activities. The presentation focused on the fundamental causes and management issues associated with the events and the corrective and preventative actions to help preclude recurrence.

On April 9, 1997, the Company issued a letter to the NRC containing a supplemental response to violations associated with the aforementioned events. In the letter, the Company indicated that no evidence was found which would indicate that certain issues pertaining to NPOs pattern of behavior in the performance of surveillances and rounds were widespread. A former NPO alleged that this statement was not true and that management knew or should have known (prior to April 9, 1997) about other alarm tests that were not performed. The former NPO further alleged that Nuclear Management was aware of other alarms tests not being performed and cited an event where [] told [] that PCOs were not testing Control Room Annunciators.

Analysis of Statements Made to the NRC in an April 9, 1997 Letter and Management Awareness of Other Missed Alarm Tests

The evidence we obtained indicates that Management relied on a Nuclear Assessment Services (NAS) Quality Assurance Surveillance of approximately 125,000 individual tasks (performed by Nuclear Operations, Maintenance, Fire Protection, Security, and Health Physics) to substantiate the basis for making the two statements made in the April 9, 1997 letter.

Auditing interviewed various Nuclear Department Management personnel including [] who were involved in the development and review of the April 9, 1997 letter to the NRC. Each person interviewed told Auditing that they had no knowledge (as of April 9, 1997) of other alarm tests not being performed. The investigation did not disclose any supporting evidence to indicate that the Management involved in developing and reviewing the April 9, 1997 letter had any knowledge of other missed alarm tests. We found no evidence that Company personnel performed a comprehensive review of other alarm tests. Company personnel relied primarily upon the aforementioned NAS Quality Assurance Surveillance of approximately 125,000 individual tasks in order to substantiate the basis for making the two statements made in the April 9, 1997 letter.

Auditing also separately interviewed [] who were allegedly involved in a conversation whereby [] allegedly told [] that PCOs were not testing Control Room Annunciators. Both [] and [] denied that such a conversation took place. Furthermore, [] told Auditing that (as of April 9, 1997) he had no knowledge of PCOs not testing the Control Room Annunciators.

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Conclusions

- We found no evidence that the Nuclear Department Management personnel involved in developing and reviewing the letter to the NRC had any knowledge of other missed alarm tests as of April 9, 1997.
- [] and [] named by the allegor both denied that they had a conversation regarding PCOs not testing Control Room Annunciators. [] denied having any knowledge (as of April 9, 1997) of PCOs not testing the Control Room Annunciators.

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ESS TRANSFORMER ALARM TESTS AND RELIABILITY OF COMPUTER DATA

Background

On September 3, 1996, [] requested that the Company supply him with specific computer data pertaining to the ESS Transformer Alarms. [] was involved in the [] effort to obtain information for an arbitration related to the termination of 7 NPOs in 1996 (due to issues arising from the testing of the 'E' Diesel Generator 0C577E Alarm). [] told Auditing that he knew the NPOs always tested the ESS Transformer Alarms and that he wanted that information in order to illustrate that NPOs did not have an aversion to testing alarms. The computer data requested by [] represented a log of computer points recorded by an SSES computer when an NPO tested each of the four ESS Transformer Alarms. Per OI-PL-0171, NPOs are required to test the four ESS Transformer Alarms once per day during the set of rounds conducted from 7:00 PM to 1:00 AM.

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In February 1997, Nuclear Operations supplied [] with data recorded by the Unit 1 computer for the aforementioned computer points. Upon reviewing the data, [] noted that the computer sporadically recorded ESS Transformer Alarm tests and that the data did not indicate all four Transformers being tested on any particular day. [] discussed his observations with [] who in turn initiated a review of the problems.

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Nuclear Operations prepared a report of the results of their review and various revisions were issued. The [] told auditing that he discussed Revision 1 (dated March 5, 1997) with [] and explained the following to []: (1) the review indicated there was no technical basis to conclude that the computer points were unreliable, and (2) some computer points were not recorded due to wiring problems. [] told Auditing that [] did not accept this explanation and asked additional questions about the computer data. [] told Auditing that he had learned from [] that two computer points were not functioning and he questioned why the computer sporadically recorded two other computer points. [] initiated a review into the additional questions and told Auditing that he subsequently discussed Revision 2 (dated March 26, 1997) with [] at which time [] indicated he asked additional questions. Subsequently, the [] provided no additional information to [] and advised [] that the matter would be settled at the aforementioned arbitration. [] told Auditing that he did not pursue this matter any further. During the above course of events, the former NPO learned about the computer data problems identified by [].

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Analysis

Auditing interviewed [] who performed Nuclear Operation's review of computer points associated with the four ESS Transformer Alarms. [] told Auditing that Revision 3 (dated April 29, 1997) of the aforementioned report had not been provided to []. Revision 3 contained additional information explaining why the Unit 1 computer data supplied to [] sporadically recorded two computer points.

[] told Auditing that in Revision 3 he concluded that the Unit 1 computer data (previously supplied to []) sporadically recorded computer points due to the slow speed at which the Unit 1 computer monitors each computer point. Moreover, Revision 3 indicated that the Unit 2 computer recorded computer points at a much faster speed thereby allowing it to reliably record those same computer points. [] validated this via a comparison of Unit 1 computer data to Unit 2 computer data. Auditing performed another comparison which confirmed [] conclusions. Furthermore, Auditing verified with the Manager-Computer Systems, the speed at which the Unit 1 and Unit 2 computers monitor the aforementioned computer points. The information Auditing obtained from the Manager-Computer Systems was consistent with [] conclusions.

Nuclear Operations also reviewed a sample of 117 days (between January 1996 and July 1996) of Unit 2 computer data for the two computer points in question and noted no instances of NPOs not testing the two ESS Transformer Alarms associated with those computer points. Likewise, Auditing performed a similar review and also noted that the data indicated that NPOs were testing the two ESS Transformers. Due to the Unit 2 computers inability to record computer points associated with the other two ESS Transformers, we were unable to obtain conclusive evidence that NPOs tested those Alarms.

Conclusions

The evidence developed during this investigation indicates that:

- The Unit 1 computer data supplied by the Company to [] did not reliably record the NPOs performance of ESS Transformer Alarm Tests.
- Unit 2 computer data provides a reliable record of NPO tests of at least two of the four ESS Transformer Alarms.
- NPOs tested at least two of the ESS Transformers during the sample period between January 1996 and July 1996.

ACKNOWLEDGEMENT

Auditing wishes to acknowledge the assistance that Nuclear Department personnel provided to us during this investigation.

D. A. Duda and T. C. Roth conducted this investigation.

If you need additional information or would like clarification on any items contained in this report, please feel free to contact Auditing.

We do not expect a response to this report.

Corporate Audit Services

PP&L, Inc.
Job # 739459-97

Excerpt from April 9, 1997 Letter to the NRC
(Highlighted Sentences Are the Sentences in Question)

2. Management Controls

PP&L believes that the apparent violations do not constitute a widespread breakdown in control of licensed activities and that the violations should not be increased in severity for that reason. Deficient performance by NPOs was identified for activities associated with the "E" Diesel and by [] and [] in connection with General Station Inspections (GSIs). With respect to NPO performance, PP&L implemented preventive actions in response to NRC Information Notice (IN) 92-30 that were consistent with industry norms, including briefings for station personnel, surveillance of logged entries, surveillances of operator rounds and audits of operator logs. Although these actions were insufficient in hindsight to provide early detection of the NPO surveillance and rounds issues, they were reasonable precautions at the time. Contemporaneous NRC inspections viewed PP&L's implementation of its self-monitoring program in response to IN 92-30 as acceptable.

After PP&L's thorough investigations revealed the NPO surveillance and rounds performance issues, a series of actions were taken to determine the scope and extent of the issues. Specifically we

- intensified operations management oversight
- conducted QA surveillances
- completed Independent Safety Evaluation Services (ISES) Operations Surveillance
- conducted QA reviews of security entries versus documentation logs (including security, health physics and fire protection)
- made a series of improvements to make assessment practices more intrusive and effective

The NPO's pattern of behavior demonstrated by the performance of surveillance and rounds was found only in a particular activity (rounding, respective NPO rounds) in a specific location ("E" Diesel Building). Moreover, we found no evidence that these issues were widespread. The successful long-term operating record at SSES would support these conclusions. The violations were self-identified before a plant event occurred. The violations did not result in the inability of safety systems to perform their intended safety functions. Because PP&L took precautions that were consistent with industry norms and sufficient to preclude a widespread problem, there is no basis for finding a breakdown in management controls and increasing the severity of violations for that reason.

With respect to the performance of the alarm test by NPOs, our investigation revealed that some NPOs appeared to understand the requirement but failed to comply with it on numerous occasions. Other NPOs did not perform the test initially but once they commenced testing, they performed it consistently. While we concluded that the conduct by both groups of NPOs constituted willful misconduct, we did not find any evidence of deliberate misconduct. With respect to the GSIs and the monitoring of NPO rounds, we concluded that no [] or [] engaged in willful misconduct. Rather, [] and a former [] demonstrated poor judgment with regard to the scope of their discretion exercised as a [] and a failure to meet management's expectations with respect to performing the applicable requirements and for this reason these individuals were severed from employment. To the extent NPO surveillance or alarm test records were inaccurate, these inaccuracies resulted from the actions of "non-licensee officials" as defined in the Enforcement Policy.

The safety significance of these events is described below. Most GSIs and monitoring activities were done properly. Neither the plant condition nor the ability to detect and mitigate a transient was compromised. Accordingly, these violations were limited in scope, effect and safety significance, and they are not indicative of a widespread breakdown in management controls.

PP&L, Inc.
Job # 739459-97
List of Interviewees

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