

- October 15, 1992 - Unit-3 scrambled and recirculation pumps shutdown, "there was a significant cool down in the bottom head as a result of the loss of forced circulation" (IR 50-277/94-04 and 50-278/94-04.)

- October 16, 1992 - The NRC identified programmatic weaknesses related to the System Manager program. (NRC IR 50-277/92-26 and 50-278/92-26.)

- November 16, 1992 - The NRC noted: "An industrial safety concern, which involved the potential for loss of power in the drywell...had not yet been resolved and warrants your attention" (NRC IR 50-277/92-30 and 50-278/92-30.) (See December 12, 1995 for a related incident.)

- December 2 and 11, 1992 - Failures of the containment, atmospheric, dilution (CAD) system gas analyzer occurred at Unit-2. On both occasions PECO personnel did not "understand" or "recognize" the problem with the CAD. (NRC IR 50-277/92-29 and 50-278/92-29.)

- December 4, 1992 - Several weaknesses were reported during the the Initial SALP of Licensee Performance "including numerous component failures, lapses in the operating procedure and deficiencies in engineering and technical support" (York Daily Record, January 9, 1993.) "Among the areas identified for improvement were plant performance monitoring and engineering and technical support" (PECO, Report to the Shareholders, March 1, 1993.)

- December 7, 1992 - During Unit-2 start-up, the '2B' Recirculation Pump failed. (NRC IR 50-277/92-32 and 50-278/92-32.) (See March 2, 1993 for a related incident.)

- December 17, 1992 - Turbine control oscillations occurred while Unit-2 was operating at 89.5% power. The plant was "stabilized" at 76.5% power. (NRC IR 50-277/92-32 and 50-278/92-32.)

- December 19, 1992 - An Unusual Event was declared "due to a loss of emergency communications capabilities. Both units were operating at 20% power" (NRC IR 50-277/92-32 and 50-278/92-32.)

- January 1, 1993 - The Unit-2 high pressure coolant injection system was declared inoperable. (NRC IR 50-277/92-32 and 50-278/92-32.) (See January 25 and 31, March 1 and August 9, 1993, for related incidents.)

- January 21, 1993 - A Notice of Violation (NOV) was issued relating to the NRC's Motor-Operated Valve (MOV) Inspection on October 19-23 and November 3, 1992. PECO "1) did not document nonconforming positions, 2) did not properly disposition existing nonconforming conditions, and 3) did not take timely corrective actions to evaluate and resolve nonconforming conditions in MOVs..." (NRC IR 50-277/92-82; 50-278/92-82.) (See August 8-16, 1998, for a related incident.)

- January 25, 1993 - During surveillance testing, the Unit-3 high pressure coolant injection system was declared inoperable. (NRC IR 50-277/93-01 and 50-278/93-01.) (See January 1 and 31, March 1 and August 9, 1993, for related incidents.)

- January 31, 1993 - The Unit-2 high pressure coolant injection system was declared inoperable. (NRC IR 50-277/93-01 and 50-278/93-01.) (See January 1 and 25, March 1, and August 9, 1993, for related incidents.)

- March 2, 1993 - Unit-2 scrammed while operating at 70% reactor power. (NRC IR 50-277/93-03 and 50-278/93-03.)

- March 2, 1993 - The Unit-2 '2A' reactor recirculation pump and '2A' condensate pump tripped while the Unit was operating at 100% power" (NRC IR 50-277/93-03 and 50-278/93-03.) (See December 7, 1992 for a related incident.)

- March 3, 1993 - The Unit-2 high pressure coolant injection system was declared inoperable. (NRC IR 50-277/93-03 and 50-278/93-01.) (See January 1, 25 and 31 and August 9, 1993 for related incidents.)

- March 7, 1993 - [R]eactor scram, due to a low reactor vessel level. Reactor feed pump trip while lowering reactor power to within bypass valve capacity, to allow work on turbine valves" (IR 50-277/94-04 and 50-278/94-04.)

- March 10, 1993 - During a radiological safety inspection (February 8-9, 1993 and March 1-2, 1993), relating to a "breakdown of personnel access controls associated with the Transversing In-core Probe (TIP), the NRC found: "...control of personnel during such operations is considered very important as the TIPs represent one of the higher radiation sources that personnel have a potential for encountering" (NRC IR 50-277/93-02; 50-278/93-02.) (For related incidents see June 22 and 25, September 24, October 4, and November 11, 1993; June 19 and November 29, 1994 and August 24, 1995.)

March 23, 1993 - High oxygen concentration was found in Unit- 2 containment during power operation. (NRC IR 50-277/93-03 and 50-278/93-03.) (See January 17, 1992 for a related incident.)

- April 24, 1993 - Unit-2 was manually scrammed "following declaration of all reactor vessel level instrumentation served by the '2B' condensing chamber inoperable" (NRC IR 50-277/93-06 and 50-278/93-06.) (See related incident on March 27 and July 26, 1992 and September 22, 1993.)

- April 30, 1993 - A Notice of Violation was issued following an NRC inspection of the electrical distribution system. Other design and operational weaknesses were identified relating to the emergency diesel generator. (NRC IR 50-277/93-80 and 50-278/93-80.) (See July 17, 1995 for a related development.)

- May 26, 1993 - Three individuals were found to be "inattentive" or "sleeping." (C. Anderson, NRC Region I.)

- June 22, 1993 - "Controls over a special high radiation area entry were not fully effective in that a higher than expected dose rate was identified upon the entry" (IR 50-277/94-04 and 50-278/94-04.) (See March 10, June 25, September 24 and October 4 and November 11, 1993 and January 19 and November 29, 1994.)

- June 24, 1993 - PECO discovered a "mispositioned" control rod at Unit-2. The reactor was operating at 60% power. (NRC IR 50-277/93-15 and 50-278/93-15.) (For related events see February 22, 1994, April 21, 1995 and February 15, 1997.)

- June 25, 1993 "[U]nlock[ed] high radiation area door" (IR 50-277/94-04 and 50-278/94-04.) (See March 10, June 22, July 22, September 24, October 4 and November 11, 1993 and January 19 and November 29, 1994.)

- July 4, 1993 - Unit 3 was shutdown. "An unplanned Unit 3 mid-cycle outage began on July 6, 1993, to replace to known leaking fuel bundles." A fuel leak was detected in May 1992. (NRC IR 50-277/93-15 and 50-278/93-15.)

- July 30, 1993 - Unit-3 was manually scrammed "after a loss of condenser vacuum" (NRC IR 50-277/93-15 and 50-278/93-15.)

- August 9, 1993 - The Unit-3 high pressure injection system was rendered inoperable (NRC IR 50-277/93-17 and 50-278/93-17.) (For related incidents see, January 1, 25 and 31 and March 1, 1993.)

- August 11, 1993 - Unit-2 was manually scrammed. (NRC IR 50-277/93-17 and 50-278/93-17.)

- August 14, 1993 - Unit-3 was shut down after three of four residual heat pumps were deemed inoperable. The plant was operating at 100% power. (NRC IR 50-277/93-17 and 50-278/93-17.)

- September 14, 1993 - The reactor feed pump tripped due to “flow oscillations” at Unit-3.

- September 16, 1993 - An inspection of Peach Bottom’s Emergency preparedness program on June 28-30, 1993 found: “Significant areas for potential improvement included wind direction information use by emergency response groups, event announcements in the Emergency Operations Facility by the ERM [Emergency Response Manager], and ERM recognition of the best indication of main stack radiation” (NRC IR 50-277/93-10; 50-278/93-10.)

- September 22, 1993 - The NRC “noted that weaknesses in isolation of the reactor vessel water level instrumentation during installation of the [water level backfill] modification resulted in the generation of a false low signal. This low label signal caused the ECCS initiation signals and entry into a technical specification required shutdown condition at Unit 3” (For related incidents see, March 27 and July 26, 1992 and April 24, 1993.) Also the NRC completed their investigation into the recirculation pump trip on July 27, 1992. (NRC IR 50-277/93-17 and 50-278/93-17.)

- September 24, 1993 - “Workers in Unit-3 were unaware of higher than expected radiation levels” (IR 50-277/94-04 and 50-278/94-04.) (See March 10, June 22 and 25, October 4 and November 11, 1993 and January 19 and November 29, 1994.)

- September 24, 1993 - “During core off load a fuel bundle became stuck partially inserted in its storage rack in the Unit 3 fuel pool...” (NRC IR 50-277/93-24 and 50-278/93-24.) (See February 21-22, 1993 for related events.)

- October 4, 1993 - An NRC inspection (August 2-6, 1993) found: “The lack of comprehensive corrective actions for some radiological discrepancies developed under the ROR [Radiological Occurrence Reporting] process was considered a significant radiological controls program weakness. A previous audit of the radiological controls program by the NQA [Nuclear Quality Assurance] identified a significant breakdown concerning radiological controls oversight. In particular, a weakness was noted in the area of radiation worker attention to detail and adherence to instructions provided by radiological controls staff” (NRC IR 50-277/93-19; 50-278/93-19.) (See March 10, June 22 and 25, October 4, September 24 and November 11, 1993 and January 19 and November 29, 1994.)

- October 6, 1993 - “[C]ontrol switch for control room emergency ventilation left in the off position following restoration” (IR 50-277/94-04 and 50-278/94-04.)

- November 11, 1993 “Unlocked high radiation door” (IR 50-277/94-04 and 50-278/94-04.) (See March 10, June 22 and 25, September 24 and October 4, 1993 and January 19 and November 29, 1994.)

- November 15, 1993 - “5th point heater valve out of position following Unit-3 start-up, leading to a steam leak to the turbine building” (IR 50-277/94-04 and 50-278/94-04.)

- November 22, 1993 - A Notice of Violation was issued for “a poor safety review of a temporary change to a reactor core isolation cooling testing procedure led to the inadvertent release of radioactive contamination within the Unit 3 reactor building. While this resulted in a minor clothing contamination, our review indicated poor management review and control of activities related to the specific testing” (NRC IR 50-277/93-24 and 50-278/93-24.)

- December 18, 1993 - “Missed continuous fire watch” (50-277/94-04 and 50-278/94-04.) (See similar incidents on August 4, 1994 and January 11, 1998 and related data on Thermo-Lag, September 29, 1994 and October 1, 1996.)

- January 1 , 1994 - Philadelphia Electric Company changed its name to PECO Energy Company.

- January 19, 1994 - “During the inspection [October, 4-8 and November 8-10, 1993] the NRC reviewed the circumstances associated with three examples of failure by three different individuals to adhere to procedural requirements concerning entries to high radiation areas in two cases, and a respiratory protection required area in the third case.” A Severity Level III violation was announced by the NRC.

“Particularly disturbing to the NRC is the fact that the plant equipment operator, on October 27, and the engineer on October 29, willfully violated the radiological controls in that they understood that they were not to enter the areas, yet did so anyway to complete certain tasks without first meeting the necessary radiation protection requirements. The entry by the engineer on October 29 was more significant since he had been warned by health physics personnel not to enter the area pending receipt of air activity results, yet did so anyway” (Thomas Martin, NRC, Regional Administrator, January 19, 1994.) (See March 10, June 22 and 24, September 24 and October 4, 1993 and November 29, 1994 for related incidents.)

- January 24, 1993 - The High-Pressure Coolant Injection system was declared inoperable in Unit-3.

- February 3, 1994 - Unit-3 was manually scrammed due to a Generator Field Ground alarm. The reactor was operating at 100% power.

- February 22, 1994 - During power restoration at Unit-2, a control rod (38-15) was mispositioned for approximately two minutes. (For related events see June 24, 1993, April 21, 1995 and February 15, 1997.)

- February 23, 1994 - A jet pump grappling hook was dropped into the Unit-3 spent fuel pool.

- March 3, 1994 - Two four hour event notification reports were filed with the NRC due to the inoperability of the control room emergency system and problems associated with the Unit-2 high pressure coolant injection system. Both reports were later retracted.

- March 9, 1994 - Increased contamination was detected in the Unit-3 high pressure coolant injection, pump room. As a result, seven shoe contamination reports were filed.

- March 31, 1994 - A high-pressure coolant injection leak was identified.

- Spring 1994 - "The Public Utility Commission (PUC) recently approved a settlement with PECO Energy Company (PECO.) PECO will give **\$217,000** to a grant program for low income consumers and pay a \$24,000 fine for violating PUC regulations. For 1991, the PUC found 241 violations of the Commission's regulations. Many had to do with PECO's handling of billing disputes and service shut-offs" ("Utility Consumer Line," Bureau of Public Liaison, PA PUC, Spring/Summer 1994.)

- April 18, 1994 - Further weld thinning was identified in the Emergency Service Water supply .

- April 27, 1994 - Unit-s experienced a reactor vessel water transient. "Pitting" was identified in this area in November 1993.

- May 14, 1994 - Power was reduced at Unit-2 to "approximately 77% to perform a rod pattern adjustment and to repair a non-safety main steam moisture separator drain tank (MSDT) drain valve. During the power restoration on May 16, the 2A reactor recirculation pump (RRP) speed increased unexpectedly, (See September 22, 1995) causing reactor power to increase above the average power range monitor flow biased high power scram setpoint, resulting in a reactor scram" (IR 50-277/94-06 and 50-278/94-06.) (See October 24 and November 10, 1994.)

- May 26, 1994 - A Severity Level IV violation was issued after the NRC "identified requirements for collecting a representative sample of the water river flowing into the site were not being met" (Edward C. Wenzinger, Chief, Projects Branch 2, Division of Reactor Projects, NRC.)

- June 16, 1994 - The NRC reported the following problems during Peach Bottom's most recent Radiological Emergency Preparedness Exercise: "...14 Areas Requiring Corrective Action (ARCA), two Planning Issues (PI), and eight Areas Recommended for Improvement (ARFI) were identified in the Commonwealth of Pennsylvania and the State of Maryland combined." (James Joyner, Chief, Facilities Radiological Safety and Safeguards Branch, NRC.)

- June 22, 1994 - "PECO made four 10 CFR 50.72 four hour notification reports to the NRC during the period. Subsequently, PECO retracted three of the event reports" (IR 50-277/94-06 and 50-278/94-06.)

- June 23, 1994 - "The [NRC] inspectors continued to review the installation of the new control room radiation monitoring system...Specifically, system operating procedures were not in place when the system was placed in service and considered operable, the system was operated in an unanalyzed mode of operation because of unclear documentation, and one channel of the system was inadvertently removed from service due to the use of an improper drawing [A Notice of Violation was issued.]" Edward C. Wenzinger, Chief, Projects Branch 2, Division of Reactor Projects, NRC.)

- June 30, 1994 - "Two small surface cracks were found last September in welds on the core shroud of Peach Bottom Unit 3 near Delta., Pa., said Bill Jones, a spokesman for PECO Energy Co., the plant's operator...The shrouds are 2-inch thick stainless steel cylinders that direct the flow of radioactive water around the fuel core. A nuclear reaction boils water into the steam used to generate electricity" (*The Patriot News*, July 1, 1994 A5.) (See June 30, 1994 and August 18, 1995.)

"Peach Bottom Unit No. 3 was initially examined during its refueling outage in the fall of 1993. Although crack indications were identified at two locations, the Company presented its findings to the NRC and recommended continued operation of Unit No. 3 for a two-year cycle. Unit No. 3 was re-examined during its refueling outage in the fall of 1995 and the extent of the cracking identified was determined to be within industry-established guidelines. The Company has concluded, and the NRC has concurred, that there is a substantial margin for each core shroud weld to allow for continued operation of Unit No. 3. Peach Bottom Unit No. 2 was initially examined during its October 1994 refueling outage and the examination revealed a minimal number of flaws. Unit No. 2 was re-examined during its refueling outage in September 1996. Although the examination revealed additional minor flaw indications, the Company concluded, and the NRC concurred, that neither repair nor modification to the core shroud was necessary. The Company is also participating in a GE BWR Owners Group to develop long term corrective actions." (PECO Energy Company, Form-10/K-A, 1999, p. 1999)

A three-inch crack was identified in the reactor vessel shroud at Brunswick-1 in the summer of 1993. Cracks have also been found in the core-shrouds of Dresden-3 and Quad Cities-1. All of these reactors are GE Mark 1 designs.

- July 18, 1994 - A Severity Level IV Violation was issued for failure to implement maintenance procedures on the Unit-2 high pressure coolant injection system. PECO issued an LER.

- July 22, 1994 - "PECO identified that the existing instrument reference calibration placards were incorrectly installed with respect to the bottom of the torus of each unit" (IR 50-277/94-013 & 50-278/94-013.) PECO issued an LER.

- July 27, 1994 - An NRC inspection "noted that there had been no in-depth training provided to some of the [rad waste] shipping engineers since 1988...As such, the training provided to shipping engineers remains a program weakness. Licensee management informed the inspector they consider their current shipping engineer training program to be adequate" (IR 50-277/94-18 and 50-278/94-18.)

- August 3, 1994 - "...PECO Energy personnel unknowingly placed the emergency cooling water system in a configuration that prevented safety-related equipment from receiving design cooling water flow rates...The overall safety consequences of this event were small...however, this condition represented a significant degradation in plant safety..." An enforcement conference was held on October 18, 1994. (Richard W. Cooper, II, Director, Division of Reactor Projects, NRC, September 29, 1994.) (See November 21, 1994 for civil penalty and violation.)

- August 4, 1994 - PECO personnel missed a fire watch. (See December 18, 1993 and January 11, 1998 for related incidents, and August 10 and September 29, 1994 for more data.)

- August 10, 1994 - A "minor" fire was extinguished on the Unit-2 reactor building roof. During this episode, the Unit-2 secondary containment was breached.

- August 11, 1994 - The high-pressure, coolant-injection system was inoperable during maintenance activities. (See September 24, 1994 for related incident.)

- August 17, 1994 - "...procedures were not implemented for the operation of the reactor building [Unit-3] ventilation and standby gas treatment system" (PECO Energy, Gerald R. Rainey, Vice President, Peach Bottom Atomic Power Station, October 19, 1994.) A Severity Level IV Violation was issued.

- August 18, 1994 - An NOV was issued relating to vision problems of a LRO.

- August 26, 1994 - A NOV was issued relating to Motor Operated Valve Testing

- September 7, 1994 - A high-pressure, service water pump failed at Unit-3.

- September 8, 1994 - "Standard and Poor's Corporation (S&P) has revised its rating outlook on the company from 'negative' to stable" (J.F. Paquette, Jr., Chairman of the Board and Chief Executive Officer.)

- September 20, 1994 - During the refueling outage, air bubbles were found leaking into the reactor cavity.

- September 21, 1994 - PECO notified the NRC of a loss of shutdown cooling at Unit-2 due to a preventive maintenance operation.

- September 23, 1994 - A broken fuel rod was discovered.

- September 24, 1994 - A high- pressure, coolant-injection steam supply leak was discovered at Unit 3. (See August 11, 1994 for related incident.)

- September 29, 1994 - "Thermal Science Inc. and its president, Rubin Feldman, were indicted September 29 by a federal grand jury on seven criminal charges, including willful violations of the Atomic Energy Act, a decade-long conspiracy to defraud the US government, false statements, and more. The charges are the culmination of a nearly two-year grand jury investigation of the company, which manufactures Thermo-Lag, the ineffective fire barrier used in more than 70 nuclear reactors [including Peach Bottom.]" (The Nuclear Monitor, October 17, 1994.) (See December 18, 1993 and October 1, 1996.)

- October 10, 1994 - The NRC reported "four individuals entered the Unit 2 offgas pipe tunnel high radiation area (HRA), which was visibly posted as a HRA, and the individuals were not provided with the required radiation monitoring device, nor was positive control provided by an individual qualified in radiation protection procedures, nor did the individuals adhere to posted instructions regarding entry requirements, a requirement of the Radiation Work Permit under which the entry was made" (IR 50-277/95-05 and 50-278/95-05 and Notice of Violation.) (See October 31, 1994, November 29, 1994 and March 14, 1995 for related incidents and Notice of Violation.)

- October 16 -17, 1994 The Unit-2 reactor pressure vessel (RPV) exceeded 212 degrees F. "After reviewing operators' involvement in this event, Region I management initiated continuous coverage of the Unit-2 start-up, to ensure that operators performed a controlled and safe return of the unit to power operation" (Richard W. Cooper, II, Director, Division of Reactor Projects, November 21, 1994.) Severity Level IV Violations were issued.

- October 21, 1994 - FEMA assessed a Deficiency against the State of Maryland Emergency Operations Center for communications failure during the full-participation exercise on August 22, 1994.

- October 24, 1994 - A Licensee Event Report (LER) was filed for "Main Safety Relief and Safety Valve Setpoint Drift." (See May 14 and November 10, 1994.)

- October 27, 1994 - The DER reported that the "PECO inspection of the core shroud of Peach Bottom-2 did not find any significant flaws...Therefore, there is no repair needed for the time being." The NRC stated: "During the Unit 2 outage PECO conducted an ultrasonic inspection of the reactor vessel core shroud accessible weld areas. These examinations identified cracking of a similar nature found at Unit 3, but of much less magnitude. Based on an engineering analysis of the examination results, PECO determined that the Unit 2 shroud was structurally sound and that no actions were required to ensure its stability over the next operating cycle" (IR 50-277/94-21 & 50-278/94-21.) (See June 30, 1994 and August 18, 1995 for related incidents.)

- October 31, 1994 - The NRC reported "a Senior Reactor Operator (SRO) entered the Unit 2 high pressure coolant injection (HPCI) turbine room, which was visibly posted as a HRA, and the individual was not provided with the required alarming dosimeter, nor positive control provided by an individual qualified in radiation protection procedures, nor did the individuals adhere to posted instructions regarding entry requirements, a requirement of the Radiation Work Permit under which the entry was made" (IR 50-277/95-05 and 50-278/95-05 and Notice of Violation.) (See October 10, 1994, November 29, 1994 and March 14, 1995 for related incidents and a Notice of Violation.)

- November 10, 1994 - A LER was filed for "Non-Conservative Flow Biased Setpoints." (See May 14 and October 24, 1994.)

- November 18, 1994 - "A load drop to about 55% power occurred on November 18, 1994, to support cleaning of the main condenser waterboxes." Unit-2 returned to full power the following day. (IR 50-277/94-27 & 50-278/94-27.) (See May 31, July 16, September 10 and October 25, 1996; and, September 12, 1997 for related incidents.)

- November 21, 1994 - The NRC proposed a Severity Level III Violation and an \$87,500 fine for the emergency service water configuration problem on August 3, 1994.

- November 21, 1994 - Three items of weakness were noted by an NRC Nondestructive Examination Laboratory Inspection: "these were not marking the weld centerline on welds for UT [ultrasonic inspection] as part of the ISI [inservice inspection] program, not finding or recording a geometric reflector in excess of 50% of DAC [distance amplitude correction] while conducting UT per the ASME [American Society of Mechanical Engineers] code on a RWCU [reactor water clean-up] system weld, and having radiographs that show signs of aging in storage for work performed after original construction" (IR 50-277/94-28 & 50-278/94-28.)

- November 29, 1994 - "Two separate events occurred, involving a total of five radiation workers, where personnel entered a high radiation area without having the required dose rate monitoring equipment. Individually, these events were of low radiological consequence; however, they reflect a continuing station weakness in personnel adherence to posted boundary requirements (Section 6.0). These events are considered an Unresolved Item (URI- 94-25-01) (IR 50-277/94-25 & 50-278/94-25.)

"While we recognize that you are aggressively taking actions\* to prevent recurrence the events are similar in nature to other recent radiological events for which escalated enforcement action was taken" (Clifford J. Anderson, Section Chief, Projects Section 2B, Division of Reactor Projects.) (For related incidents see October 10 and 31, 1994 and March 14, 1995

\*For similar events see March 10, June 22 and 25, September 24 and October 4, 1993 and January 19, 1994.

- December 9, 1994 - PECO made a four hour event notification after the utility discovered two doors that separate the main stack from the environment were left open for four hours.

- December 12, 1994 - PECO was among a consortium of 33 utilities actively pressuring the Mescalero Apaches to build a high-level radioactive waste dump on their land.

- December 19-23, 1994 - An inspector "identified a condition where manual operation of fire protection system controls located outside of the vital security areas could affect the operation of vital safety systems" (William H. Ruland, Chief, Electrical Section, Division of Reactor Safety, NRC, February 3, 1995.)

- December 20, 1994 - An NRC inspector determined there was poor control over the use of a non safety-related battery charger at Unit-2.

- December 22, 1994 - A steam/water discharge to the reactor building during reactor water cleanup system testing resulted in minor shoe contamination to three individuals and contamination in portions of the Unit-2 reactor building.

- January 7, 1995 - "Reactor power was reduced to below 75% [Unit 2]...to allow for the repair of a steam leak that developed from the stem packing of an outboard MSIV" (IR 50-277/95-10 and 50-278/95-01.)

- February 14, 1995 - A Violation was issued (Severity Level IV) for PECO's "failure to properly evaluate the installation, during outages in 1993, of 'temporary' shielding above each bank of hydraulic control units (HCU) at Units 2 and 3 (four locations total), which shielding is still in place...your staff's response, past and present, to questions about the shielding arrangements demonstrated a poor questioning attitude" ( Clifford J. Anderson, Section Chief, Projects Section 2B, Division of Reactor Projects, NRC.)

- March 1, 1995 - A High Pressure Service Leak was identified by PECO at Unit-2.

- March 6, 1995 - "...operational errors involving a mis-positioned valve, an inadequate valve position verification, and poor communications resulted in the loss of keep fill pressure on the 2B core spray (CS) sub-system [Unit 2.]" (IR 50-277/95-04 and 50-278/95-04.)

- March 14, 1995 - "However, based on the results of this inspection, certain of your activities were in violation of NRC requirements, as specified in the enclosed Notice of Violation (Notice). The violation is of concern and being cited because of the number of improper high radiation area entries which are described in the enclosed inspection report...in the most recent events, radiological control personnel failed to carry out their assigned duties in accordance with radiological control management's expectations; no similar causal factors were identified in the 1993 events.") (James H. Joyner, Facilities Radiological Safety and Safeguards Branch, Division of Radiation Safety and Safeguards, NRC.)

- March 17, 1995 - "An automatic recirculation pump runback reduced power [Unit-2] to about 70% on March 17, because of a mis-conducted reactor feed pump test." (IR 50-277/95-04 and 50-278/95-04.) The incident was caused by an operator error. (See related incidents on March 4, 1996 and May 16 and June 7, 1998.)

- March 19, 1995 - High Pressure Coolant Injection (HPCI) suction valve was mispositioned at Unit-2 due to operator error. A Notice of Violation was issued. (Severity Level IV.) "Also, two subsequent shift turnover panel walkdowns failed to identify the abnormal system line-up and allowed the HPCI system to remain in the abnormal lineup for 18 hours." (Clifford J. Anderson, Section Chief, Projects Section 2B, Division of Reactor Projects.)

- March 23, 1995 -Unit-3 was manually scrammed "after the air-operated main steam supply isolation valve to the 'B' steam jet air ejector (SJAE) failed closed causing a loss of condenser vacuum." (IR 50-277/95-08 & 50-278/95-08.)

- April 10, 1995 - "The inspectors opened the three unresolved items pending review of your staff's assessment and planned corrective actions. The first issue addresses the possibility that, due to an equipment failure, a low pressure coolant injection sub-system (one of four) was not maintained with its piping full to prevent water hammer following an injection. The second issue deals with the secondary containment flood control portion of your emergency operating procedures, which could lead an operator to flood two emergency cool cooling pumps rooms, a condition outside the plant's design basis. Lastly, the third issue deals with inconsistencies between the standby liquid control system inservice testing methodology and ASME Section XI requirements for pump run time before operational data is requested." (Clifford J. Anderson, Section Chief, Projects Section 2B, Division of Reactor Projects.)

- April 16, 1995 - All control rods were "conservatively" declared inoperable at Unit-2 for 4.5 hours.

- April 21, 1995 - Control rod 46-07 "unexpectedly drifted" out of position at Unit-2. (IR 50-277/95-08 & 50-278/95-08.) (For related events see June 24, 1993, February 22, 1994 and February 15, 1997.)

- April 24, 1995 An unplanned power reduction to 35% occurred at Unit-3 when the 3B reactor recirculation pump tripped. (See May 13, 1995 for related development.)

- May 13, 1995 - The 3B reactor recirculation pump "unexpectedly" tripped. (See April 24, 1995 for related incident.)

- May 24, 1995 "...several events involving plant operators indicate a negative trend in plant operations performance. These instances include problems with procedural adherence, attention to detail, and control of maintenance activities." Executive Plant Performance Results, Richard W. Cooper, NRC, Director, Division of Reactor Projects.)

- June 10, 1995 - "Unplanned Engineered Safety Feature Actuation During Diesel Testing" caused a Licensee Event Report. (IR 50-277/95-15 & 50-278/95-15.)

- June 13, 1995 - The calibration check of the Feedwater Inlet Temperature instruments utilized equipment that was later "found out of tolerance." (IR NOS. 50-277/98-01 AND 50-278/98-01.)

- June 18, 1995 - "Condition prohibited by TS when two EDGs were Inoperable at the same time" caused a Licensee Event Report. (IR 50-277/95-15 & 50-278/95-15.) (See August 17, 1995 for proposed fine. Related incidents begin on December 10, 1996.)

- June 29, 1995 - "During the conduct of troubleshooting an electrical ground on the Unit 3 station battery, we noted an apparent lack of attention to detail and questioning attitude on the part of your staff." (Glenn W. Meyer, Chief, BWR & PWR, Division of Reactor Safety, NRC.)

- July 6, 1995 - A Licensee Event Report occurred when due to a, "High Pressure Coolant Injection System Valve Motor Failure."

- July 10, 1995 - The NRC accepted the following changes at Peach Bottom, "... eliminating the Independent Safety Engineering Group composition commitment while retaining the independent technical review function, relocating Nuclear Review Board requirements, and reducing the frequency of certain nuclear quality assurance audits." (Michael C. Modes, Chief, Materials Section, Division of Nuclear Safety, Nuclear Regulatory Commission.)

- July 17, 1995 - "Inspector review of the E-2 and E-4 emergency diesel generator modifications indicated that pre-existing drawing errors [see April 30, 1993] and insufficient post-modification testing caused both operating reactor units to be placed in a situation where only two emergency diesel generators (i.e., E-1 and E-3 operable; E-4 in a maintenance outage, while the E-2 output breaker would not automatically close) remained able to automatically respond to a loss of off site power or a design basis accident condition. The inspectors also identified that inadequate review of the modification led to a loss of power of an emergency power bus during testing, and the introduction of a design flaw such that E-2 and E-4 were not able to automatically perform their safety functions..."

“The emergency diesel generator modification issues are of concern to us since your normal design and testing process did not uncover a basic error that would have led to the E-2 and E-4 machines being unknowingly inoperable. This condition could have remain unknown until challenged or until the Unit 3 Fall 1995 post outage loss of off site power testing. Based on these results of the inspection, three apparent violations were identified and are being considered for escalated enforcement action...” (Richard W. Cooper II, Director, Division of Reactor Projects, NRC.)

(See August 17, 1995, for enforcement information.)

- July 21, 1995 - The NRC’s review of PECO’s emergency preparedness plans at Limerick and Peach Bottom found: “...quality control was lacking for Emergency Plan [EP] and procedure revisions, as the omission of a portion of an essential paragraph, concerning public emergency information, as well as numerous other minor errors, was found. Inspectors also noted that the corporate EP staff had no documented plan in place to carry out the EP training of corporate emergency responders.” (James H. Joyner, Chief, Facilities Radiological Safety and Safeguards Branch, Division of radiation safety and safeguards, NRC.)

- July 30, 1995 - Unit-3 scrambled “on high reactor water level due to a control signal failure for the 3A reactor feed pump.” (IR 50-277/95-15 & 50-278/95-15.) (See November 6, 1995 for a related incident.)

- August 9, 1995 - An Unusual Event was declared for a “potentially contaminated injured man being transported off-site by ambulance...” (IR 50-277/95-15 & 50-278/95-15.)

- August 13, 1995 - PECO identified excessive average control rod scram times at Unit-3.

- August 14, 1995 - PECO failed to meet technical specification requirements when a Reactor Water Clean-up temperature switch was found to be inoperable.

- August 15, 1995 - The NRC determined a partial loss of off-site power was cause by poor maintenance activities.

- August 17, 1995 - The NRC proposed a **\$50,000** fine for the Severity Level III violation associated with EDGs identified on July 17, 1995.

- August 18, 1995 - “HPCI [High Pressure Coolant Injection steam lines] system piping in both units is experiencing high vibration levels due to unknown causes.” (IR 50-277/95-18 & 50-278/95-18.)

- August 18, 1995 - The NRC identified a crack about 3" (length) by 2.5. "...The crack is believed to be caused by intergranular stress corrosion (IGSC)." (IR 50-27/95-18 & 50-278/95-18.) Rich Janati of the Pennsylvania Department of Environmental Protection stated, "...the new cracks are not exactly on the core shroud. They are on the core spray line." (September 5, 1995.) (See June 30, 1994 and October 27, 1994 for related incidents.)

- August 24, 1995 - During the disassembly of a transversing incore probe (TIP), the NRC "identified weaknesses in personnel communications, understanding of radiological conditions associated with the work activity, supervisory oversight, and control of contractor work activities. (See March 10, June 22 and 25, September 24, October 4 and November 4, 1993 and June 19 and November 29, 1994). Four examples of personnel failing to adhere to radiation protection procedures, a violation of NRC requirements [Severity Level IV], were identified." James H. Joyner, Chief, Facilities Radiological Safety and Safeguards Branch, Division of Radiation Safety and Safeguards, NRC, September 22, 1995.) (See March 10, 1993 for a related incident.)

- August 25, 1995 - Reactor power was reduced at Unit-3 to 30% due to a problem with a main turbine control valve.

- September 22, 1995 - At Unit-3 "an unexpected reactor recirculation pump (RRP) motor generator (MG) set trip occurred due to a maintenance technician inadvertently bumping a loose resistor lug in the RRP in the RRP MG control cabinet." (IR 50-277/95-22 & 50 2787/95-22.) (See May 14, 1995.)

- October 18, 1995 - Excessive scram times were identified at Unit-3.

- October 20, 1995 - Results of examinations of senior reactor operators "reflect an unexpected poor level of performance in the simulator." (Michael C. Modes, Acting Chief, Operator Licensing and Human Performance Branch, Division of Reactor Safety, NRC.) (See December 27, 1995 for follow-up report.)

- October 22, 1995 - Power was reduced to 90% at Unit-2 "in response to a loss of feedwater heating caused by a partial loss of offsite power. During the recovery from this event, PECO discovered that an existing '5B' feedwater heater (FWH) leak had degraded. PECO returned reactor power to 100% until October 26, when PECO reduced power to 68% to isolate the 'B' FWH train and then limited Unit 2 power operations to 95% power. On November 4, PECO declared the 'C' safety relief valve inoperable because of a leaking bellows. On November 7, PECO returned the unit to 100% power after completing a safety evaluation allowing full power operation with one train isolated. Full power operations continued until November 20, when PECO reduced power to 95% to minimize vibration of the 2A reactor feed pump (RFP)." (IR 50-277/95-26 & 50-278/95-26.)

- October 27, 1995 - An NRC inspection found two, technical unresolved issues: 1)...Peach Bottom fire protection program and the impact of inadvertent discharge of CSR (cable spreading room) carbon dioxide system on the installed safety equipment; and 2)...the appropriateness of Peach Bottom's response to an inadvertent carbon dioxide discharge alarm." (IR 50-277/95-24 & 50-278/95-24.)

- November 6, 1995 - At Unit-3, an "unexpected" trip occurred at the '3A' circulating water pump. (See September 2, 1997 and, January 14, 1998, for related incidents.)

-December 2, 1995 - A main turbine trip caused a full reactor scram at 100% power Unit-3.

-December 5, 1995 - On September 22, 1995 A Notice of Violation was issued relating to PECO's "failure to adhere to radiation protection procedures...We have evaluated your response to the violation and found that you have not completely responded as required by the Notice of Violation. While your response identifies immediate actions that were taken, it does not adequately address generic and long-term actions to prevent recurrence. For example, you indicate that a Performance Enhancement Process (PEP) investigation was initiated to determine the causes and reasons for the contamination event, and that the actions taken as a result of that effort are expected to prevent recurrence. However, you have not indicated what the findings of that effort revealed (i.e., what were the causes and reasons), and what consequent corrective actions were implemented to address those factors. Further, you indicated that a Quality Improvement Team (QIT) performed an evaluation of the work process, and their recommendations will improve radiological and work control. However, you did not provide any discussion of what recommendations were implemented and how improved performance will be achieved." (James T. Wiggins, Director, Division of Reactor Safety, NRC, December 5, 1995.)

- December 12, 1995 - A Severity Level IV Notice of Violation was issued due to PECO's failure to monitor drywell leakage at Unit -3. "Specifically, a modification prepared by your engineering staff lead to the installation of drywell drain tank pump control instrumentation that did not function as designed. Further, post-maintenance testing should have identified the problem and did not. Operators also initially failed to identify that the drywell pumps were not functioning, based on changes in in the calculated drywell leakage." A similar incident occurred in October 1994 at Unit-2 according to the NRC. (Walter J. Pasciak, Section Chief, Projects Branch 4, Division of Reactor projects, NRC.) (See November 16, 1992 for a related incident.)

- December 27, 1995 - On December 14, 1995, PECO and the NRC held a meeting to determine the causes of “weak performance” on operator exams. (See October 20, 1995.) The Company’s conclusions included “... the unrecognized need for senior reactor operator (SRO) candidates to have additional plant familiarization, the weak understanding of system details including protection and control logic, the need to upgrade the cognitive level of written questions, and the infrequent evaluation of the candidates’ ability to prioritize mitigating actions during simulator scenarios. In addition, your staff stated that your guidance for examination validation and proadministration review will be revised to promote prompt escalation of any unresolved examination concerns to PECO Energy management.” (Glenn W. Meyer, Chief Operator, Licensing and Human Performance Branch, Division of Reactor Safety, NRC, December 27, 1995.)

- January 20, 1996 - Power reduced at both units due to the high river level.

- January 30, 1996 - The NRC praised the radioactive waste program but “noted weaknesses in training provided shipping personnel on radioactive material hazards and considered this an unresolved item.” (Walter J. Pasciak, NRC, Chief Projects Branch 4, Division of Reactor Projects.)

- February 1, 1996 - Power was reduced at Unit 3 “for condenser water box cleaning. (IR 50-277/96-01 & 50-278/96-01.)

- February 2, 1996 - Plant operators “identified a hydrogen leak on the Unit 3 generator neutral bushing. Operators reduced power to 23% to remove the generator from the grid and effect repairs.” (IR 50-277/96-01 & 50-278/96-01.)

- February 3, 1996 - At Unit-2, power was reduced to “85% for repair of a hydraulic control unit and rod pattern adjustment.” (IR 50-277/96-01 & 50-278/96-01.)

- February 5, 1996 - Power was reduced at Unit 2 to 78% “in response to a loss of condenser vacuum event...” (IR 50-277/96-01 & 50-278/96-01.)

- March 4, 1996 - Power was stabilized at 65% power at Unit 2 after “a recirculation pump runback due to the 2B reactor feedwater pump (RFP) trip.” (IR 50-277/96-01 & 50-278/96-01.) (See related incidents on March 17, 1995 and May 16 and June 17, 1998.)

- March 25, 1996 - The NRC issued two violations during a routine inspection. "They involved not properly performing functional testing of the safety-related degraded grid under voltage relays to ensure their operability, and inadequate controls over a 125 vdc circuit breaker supplying power to portions of the Unit 2 remote shutdown panel." (Walter J. Pasciak, NRC, Chief, Projects Branch 4, Division of Reactor Projects.) (See April 24, 1996.)

- April 17, 1996 - The Unit-2 "High Pressure Coolant Injection (HPCI) system was declared inoperable and removed from service following the discovery of a 10 drop per minute leak from the inlet nipple of the HPCI cooling water line relief valve." (IR -277/98-02; 50-278/98-02.)

- April 24, 1996 - Two Severity Level IV violations were issued by the NRC. "...since 1989, PECO had calibration data that indicated that the 98% and 89% degraded bus under voltage relay setpoints were found to be outside of the Technical Specification allowable values and did not take appropriate actions to the correct the issue...Contrary to the above, PECO did not properly identify or implement corrective actions to identify and correct an adverse circuit breaker position that caused portions of the Unit 2 Remote Shutdown panel to not receive alternate control power for over a year. This failure led to several functions of the remote shutdown panel being inoperable from October 1994 through January 1996." (PECO Nuclear, Thomas N. Mitchell, Vice President, Peach Bottom Atomic Power Station.) (See March 25, 1996.)

- Spring, 1996 - PECO Energy Company has expressed interest in an Energy Department proposal to use fuel made from decommissioned warheads at Peach Bottom and Limerick. Peco spokesman William Jones stated, "It is just something we've expressed interest, if the DOE picks up the cost and there is a net benefit for our customers." But Greenpeace spokesman Tom Clements observed, "Consumers now will be forced to produce bomb material and encourage international plutonium use by simply flipping their light switch." All told, eighteen utilities, including a Canadian entity, are interested in using fuel made from weapons-grade plutonium. (From *U.S. Newswire*, *Greenwire* and *The Houston Chronicle*.)

- May 9, 1996 - Power was reduced to 65% at Unit 2 due to turbine control valve (No. 2) failure.

- May 9, 1996 - An Notice of Violation was issued when "Control Room Emergency Ventilation Filter Train 'A' Test, was identified as being out of sequence." (NRC, August 6, 1996.)

- May 31, 1996 - Power was reduced at Unit 3 to 62% "to allow condenser waterbox cleaning, control rod pattern adjustments, and other preventive maintenance activities." (IR 50-277/96-04 and 50-278/96-04.) (See November 18, 1994; July 16, September 10 and October 25, 1996; and, September 12, 1997 for related incidents.)

- May 22, 1996 - A Notice of Violation was issued for "...an unexpected loss of the Unit 2 'B' RPS power supply occurred when an equipment operator mispositioned the voltage adjustment rheostat for the ORS Alternate feed transformer." (NRC, August 6, 1996.)

- June 3, 1996 - The NRC notified PECO that "we are unable to close your NRC Generic Letter 89-10 motor operated valve program at this time." (Walter J. Pasciak, NRC, Chief, Projects Branch 4, Division of Reactor Projects.)

- June 9, 1996 - Power was reduced to 71.5% at Unit 2 "to secure the 2C reactor feed pump (RFP) for scheduled maintenance." (IR 50-277/96-04 and 50-278/96-04.)

June 12, 1996 - "...the hatch between the Unit #3 refuel floor and the refuel floor roof was propped open to allow access to the roof for performance...Personnel performing this test believed that the only procedural requirement to open the hatch was to have a security guard present." (August 6, 1996.)

- June 22, 1996 - Power was reduced to 25% at Unit 3 "to repair electro-hydraulic control (EHC) oil leaks on the No. 4 TCV [Turbine Control Valve] and No.2 TSV." (IR 50-277-96-04 and 50-278/96-04.) (See June 23, 1996 for related incident.)

- June 23, 1996 - "Manual unit shutdown and forced outage [Unit 3], during the June 22 load drop the No. 2 TCV [Turbine Control Valve] mechanically failed. PECO completed the outage and restarted the unit on June 27, the unit reached 100% on June 28. (See June 22 1996 for related event.)

- July 16, 1996 - Power was reduced to 72% at Unit-3 for main condenser waterbox cleaning. (See November 18, 1994; July 16, May 31, September 10 and October 25, 1996; and September 12, 1997 for related incidents.)

- August 2, 1996 - Power was reduced to 70% at Unit-3 "to transfer the steam jet air ejectors and repair a steam leak from the packing of the steam isolation valve." (IR 50-277/96-06 and 50-278/96-06.) (See August 10, 1996 for a related incident.)

- August 6, 1996 - A Notice of Violation was issued after NRC inspectors “noted three examples where station personnel performed activities without properly implementing the established written procedures. These procedural adherence deficiencies involved various parts of the site organization and indicated a decline in station procedural adherence.” Walter J. Pasciak, NRC, Chief, Projects Branch 4, Division of Reactor Projects.

- August 6, 1996 - Power was reduced to 85% at Unit-3 “in response to an off-gas recombiner isolation.” (IR 50-277/96-06 and 50-278/96-06.)

- August 10, 1996 - Power was reduced to 55% at Unit-3 “to transfer the steam jet air ejectors.” (See August 2, 1996 for a related incident.)

- September 1, 1996 - “...the Company’s stock price under performed the Dow Jones Utilities Index and S&P 500 Stock Index due to the forced shutdown of Salem Units No. 1 and No. 2, uncertainty about the pace of competition in Pennsylvania and the decline in 1996 earnings [down \$0.24 per share.]” (“Report to Shareholders, “ J.F. Paquette, Jr., Chairman of the Board.)

- September 5, 1996 - PECO joined a consortium of utilities asking the DOE “to consider them as candidates for the disposal of U.S. and Russian stockpiles of weapons-grade plutonium...Under the proposal, the utility companies would burn fuel pellets that include small amounts of plutonium oxide in addition to the pellet’s traditional ingredient, uranium oxide...” (AP, September 5, 1996.)

- September 10, 1996 - Unit-3 “...unit load was reduced to approximately 75% power for condenser water box cleaning.” (See October 25, 1996, for related incident.) (IR 50-277/96-08 & 50-278/96-08.)

- September 20, 1996 - “...with Unit 3 shutdown, the maintenance personnel mistakenly pulled the primary containment isolation system (PCIS) inboard and outboard mechanical vacuum pump trip logic fuses...while working on a local leak rate test activities”. (IR 50-277/97-04 & 50-278/97-04).

- October 1, 1996 - The Nuclear Regulatory Commission (NRC) fined Thermal Science, Inc. (TSI) **\$900,000** for “deliberately providing inaccurate or incomplete information to the NRC concerning TSI’s fire endurance and ampacity testing programs.” (James Lieberman, Director of Enforcement.) The fine was the largest assessed against a nuclear contractor and the second highest in the agency’s history. In 1992, the NRC declared TSI’s fire barrier, Thermo-Lag, “inoperable.” (For related incidents, see December 18, 1993, September 29, 1994, May 19, 1998, October 12, 1999, and July 21, 2000.)

- October 6, 1996 - Unit-2 scrambled due to equipment problems. (See October 15, 1996 for a related incident. Also, see November 18, 1994 and May 31 and July 16, 1996 for related problems.)

- October 9, 1996 - "Based on the results of this inspection, an apparent violation was identified and is being considered for escalated enforcement action...Specifically, the failure to establish adequate performance criteria that would demonstrate appropriate preventive maintenance for several systems and components was identified." (NRC, James T. Wiggins, Director Division of Reactor Safety.)

- October 10, 1996 - "The violation deals with your procedures allowing operation of the [standby gas treatment] system that was unanalyzed in accordance with the updated final safety analysis report..." A predecisional enforcement conference was also announced. (NRC, Richard W. Cooper, II, Director, Division of Reactor Projects.)

- October 15, 1996 - Unit-2 scrambled for the second time in nine days due to equipment problems.

- October 25, 1996 - Unit-3 "...unit load was reduced to about 58% for waterbox cleaning, control rod drive scram testing time, and 3A reactor feed pump maintenance." (See September 10, 1996 for a related incident. Also, see November 18, 1994; May 31 and July 16, 1996; and, September 12, 1997 for related problems.) (IR 50-277/96-08 & 50-278/96-08.)

- October 29 - 1996 - Unit-3 "power was reduced to about 60% power to mitigate a lowering condenser vacuum condition which developed due to off-gas recombiner system problems." (IR 50-277/96-08 & 50-278/96-08.)

- December 10 and 27, 1996 - Emergency diesel generator power fluctuations were reported. (IR 50-277/97-01 & 50-278/97-01.) (See December 27, 1996 and January 24, February 7 and March 6, 1997 for related developments.)

- December 18, 1996 - The NRC recognized two, Severity Level IV violations during an inspection from September 8, through November 9, 1996: "The first issue involved the failure to maintain an adequate contractor qualification program, to ensure the qualification of contractor personnel performing independent safety-related work activities. The second issue involved the failure of engineering and operation personnel to identify and prevent the calibration of average power range monitors outside of the technical specification limits. This resulted in a failure to enter a technical specification required shutdown action statement for inoperable average power range monitors." (Walter J. Pasciak, NRC, Chief, Projects Branch 4, Division of Reactor Projects.)

-December 20, 1996 - "Based on the results of this inspection, an apparent violation was identified and is being considered for escalated enforcement...The apparent violation concerned the failure to control safeguards information in accordance with NRC requirements. The circumstances surrounding this apparent violation, the significance of the issue, and the need for lasting and effective corrective action were discussed with members of our staff at the inspection exit meeting on November 27, 1996." (James T. Wiggins, Director, Division of Reactor Safety, NRC, December 20, 1996.)

- December 27, 1996 - The NRC cited PECO for a violation involving the failure to verify a modification change on an emergency diesel generator. (IR 50-277/96-06 & 50-278/96-06.) (See December 10, 1996 and January 24, February 7 and March 6, 1997 for related developments.)

- January 3, 1997 - A Severity Level III Violation was issued by the NRC for "the failure to establish, for several structures, systems, and components (SSC), adequate performance criteria to monitor the effectiveness of preventive maintenance...Since this violation involved multiple examples of failures to establish, or adequately establish, performance criteria...the violation has been categorized at Severity Level III..." (NOV 50-277/96-07 & 50-278/96-07.)

- January 8, 1997 -FEMA identified several deficiencies during the emergency preparedness drill on November 19, 1996 including: coordination of information with the York County Communication Center and the county's emergency management staff and the failure of the Cecil County Emergency Operations Center to notify the public promptly and maintain the proper notification sequence.

- January 21, 1997 - NRC inspectors determined that core thermal power was operating at a rate greater than mandated in the technical specifications since June 12, 1995, due to improperly calibrated feedwater temperature instruments. (IR 50-277/97-01 & 50-278/97-01.) "Thus, this issue represented a missed precursor event." (June 4, 1997, IR 50-277/97-02 & 50-278/97-02.)

- January 21, 1997 - High Pressure Coolant Injection stop valve timing and gland condenser gasket failure was reported at Unit-3. A similar event occurred in August 1996. (IR 50-277/97-01 & 50-278/97-01.)

- January 24, 1997 - PECO declared the EDG [E1] inoperable due to observed power swings of 200 to 300 KW while increasing load, 500 KW at rated load, and a 500 KW during shutdown." (IR 50-277/97-01 & 50-278/97-01.) (See December 10 and 27, 1996 and February 7 and March 6, 1997 for related developments.)

- February 1, 1997 - "...an unexpected reactor water conductivity increase " followed a "load drop." (IR 50-277/97-01 & 50-278/97-01.)

- February 7, 1997 - An "unresolved item" was identified during an inspection "dealing with your staff's inability to identify the cause of load fluctuations on the E-1 emergency diesel generator during testing operations. This item was of concern since, without a root cause, the possible affects on operability may not be clearly identifiable." (Walter J. Pasciak, NRC, Chief, Projects Branch 4, Division of Reactor Projects.) (See December 10 and 27, 1996 and February 7 and March 6, 1997 for related developments.)

- February 10, 1997 - Two violations were identified in the turbine building. "These violations involved failure to assure that the turbine building atmosphere was processed through the turbine building gaseous waste treatment system as specified in the ODCM, and failure to provide an adequate safety evaluation to support certain aspects of the modification in accordance with 10 CFR 50.59." (John R. White, NRC, Chief, Radiation Safety Branch, Division of Reactor Safety.) **(See May 7, 1997, for NRC rebuke on PECO's lack of follow-up.)**

- February 15, 1997 - "...with Unit-3 at 100% of rated power, while performing [a control rod exercise], the reactor operator (RO) selected control rod 58-39 and moved it in, from position 48 to 46. Subsequently, after becoming distracted by a telephone call, the operator returned to the test and mistakenly moved control rod 58-43, from position 48 to 46, without first returning control rod 58-39 to position 48." (IR 50-277/97-01 & 50-278/97-01.) (For related events see June 24, 1993, February 22, 1994 and April 21, 1995.)

- February 27, 1997 - "PECO Energy Inc. had a yield of 7.44 percent...Those are stocks to be avoided" because these companies are high-cost producers that may not be able to afford to keep paying their dividends, said Miller, who manages the Better Than Bonds/Utility.' (Dow Jones News Service.)

- March 1997 - "Common stock earnings for the year ended December 31, 1996, were \$2.24 per share, \$0.40 per share lower than last year." (PECO Energy, "Report to Shareholders", J. F. Paquette, Jr., Chairman of the Board.)

- March 6, 1997 - On March 6, operators declared the E-3 EDG inoperable because of observed fluctuations in generator output load..." (IR 50-277/97-01 & 50-278/97-01.) (For related developments see December 10 and 27, 1996 and January 24 and February 7, 1997.)

- March 9, 1997 - A manual reactor scram was initiated at Unit 3 "...as operators lowered reactor power to allow a drywell entry to correct the low lube oil level, the A recirculation pump tripped..." The reactor returned to operation three days later. (IR 50-277/97-02 & 50-278/97-02.)

- March 24, 1997 - The Dow Jones utilities average “has dropped 8.1 percent since reaching a 52-week high in late January on the expectation that the Fed will soon raise interest rates, investors said. Niagara Mohawk Power Corp., PECO Energy Corp. and Unicom Corp. led the drop. The Dow Jones Industrial average, meanwhile, is little changed for that period.” (Bloomberg Business Service.)

- March 25, 1997 - Inadvertent shutdown of Unit-3 drywell chiller occurred. (See August 22, 1998 for a repetitive incident.)

- April 1, 1997 - At Unit 2, “Reactor power was reduced from 100% to approximately 48% due to a leak at a main turbine control valve (TCV) drain line.” (IR 50-277/97-02 & 50-278/97-02.)

In addition, “... the 2’ A’ Reactor Feedwater Pump Turbine high water level trip capability was inoperable for greater than two hours while Unit 2 reactor power was [greater than] 25%.” (IR 50-277/98-03; 50-278/98-03.) The NRC issued a Level IV violation. (Also, see November 7, 1997, for a similar incident.)

- April 1, 1997 - PECO filed its Restructuring Plan with the PUC and asked to recover \$6.8 **billion** in “uneconomical”, stranded costs. The initial proceeding will deal with a request for \$3.7 billion. (See April 14, May 22 and June 18, 1997, for more information.)

- April 10, 1997 - Unit 3 was operating at 100% power when “the B recirculation pump tripped unexpectedly due to a fault to ground the power cabling to the motor generator set.” (IR 50-277/97-02 & 50-278/97-02.)

- April 14, 1997 - “PECO entered a two hour TS actions (TSA)...for loss of the C reactor feed pump (RFP) high water level trip capability on Unit 3 due to the discovery of a blown fuse. The blown fuse made the trip function, required TS 3.3.2, inoperable.” (IR 50-277/97-02 & 50-278/97-02.)

- April 14, 1997 Administrative Law Judge Louis Cocheres issued a decision stating PECO was not entitled to recoup and “stranded assets” primarily associated with its nuclear generating stations at Limerick and Peach Bottom. (Associated Press, April 14, 1997.) ((See April 1, May 22 and June 18, 1997 for more information.)

- April 15, 1997 - A high pressure water service system leak developed at Unit 3. “The size of the hole was determined to be about 2 mm in diameter, and the leak rate was less than 1 gallon per minute.” (IR 50-277/97-02 & 50-278/97-02.)

- May 7, 1997 - A follow-up Inspection dealing with violations identified by the NRC on February 10, 1997, found that PECO failed to provide data:

During the telephone discussion we conveyed several concerns with the [PECO's] response. Principally, the discussion of reasons for the violations did not clearly identify root or proximate causes. Accordingly, we could not conclude that corrective actions you specified effectively addressed the cause of the violation. Additionally, your response indicated that your safety evaluation was based on the premise that the Turbine Building was maintained at a negative pressure so that air would not be expected to be released through the penetrations. However, no information was provided as to why the Turbine Building was not maintained at a negative pressure, as presumed by your safety evaluation. Further, no commitment was made to document and report your estimate of the unmonitored release... (James T. Wiggins, NRC, Director, Division of Reactor Safety.)

- May 9, 1997 - PECO entered into an agreement with Delmarva Power & Light Company and Public Service Electric and Gas Company (PSE&G) regarding the shut down of the Salem nuclear power plant. "Under the terms of the settlement, PSE&G will pay the Company [PECO] \$69.8 million and Delmarva \$12.1 million. The settlement also provides that if the current outage exceeds 64 reactor unit months, PSE&G will pay the two companies an additional \$1.4 million per reactor unit month, up to an aggregate of \$17 million, to be divided proportionately. A reactor unit month is a month during the current outage in which a unit is off-line. (J. F. Paquette, Jr., Chairman of the Board, "Report to Shareholders," June 1997.)

- May 22, 1997 - The PUC ignored the recommendation of Administrative Law Judge Louis Cocheres and allowed PECO to recoup \$1.1 billion in stranded investments from customers. As part of Negotiated Settlement worked out between PECO and intervening parties and approved by the PUC, PECO was awarded **\$5.4 billion in "stranded costs"**. (For more information see April 1 & 14 and June 18, 1997.)

- June 1997 - "Common stock earnings for the quarter ended March 31, 1997, were \$0.49 per share, \$0.16 per share lower than the earnings of \$0.65 per share for the first quarter of last year...Earnings for the twelve months ended March 31, 1997 were \$2.08 per share as compared to \$2.64 per share for the corresponding period in 1996." (J. F. Paquette, Jr., Chairman of the Board, "Report to Shareholders," June 1997.)

- June 4, 1997 - Two violations were identified by the NRC including failure to full “understand” or “review” the significance of a reactor feed pump trip and temporary scaffolding was located too close to safety-related equipment.

- June 5, 1997 - PECO announced it was interested in buying a portion of the 25-year-old Main Yankee nuclear power plant. (Main Yankee was closed by its owners on May 27, 1997. Day-to-day operations were taken over by the Entergy.) Earlier, in the year, PECO offered to purchase Cajun Electric Power Cooperative’s 30% stake in the River Bend (940 MWe) nuclear generating station for \$50 million. The Agreement with Cajun was approved by a US Bankruptcy Court on May 29, 1997. (Compiled from articles in the *Patriot News*, June 5 & 23, 1997 and a PECO Press Release, June 5, 1997.) (See September 11 and October 3, 1997 and June 17, 1998, for related developments. Cajun updates can be found on May 27, 1998 and May 27, 2000).

- June 18, 1997 - A number of environmental and consumer organizations and Senator Vincent Fumo filed separate appeals to the PUC’s May 22 decision allowing PECO to bill customers \$1.1 billion in “stranded costs.” (*PR Newswire*, June 18, 1997.) (See April 1 & 14 and May 22, 1997, for background data.)

- July 1, 1997 - Two high pressure service water system motor operated valves failed to close.

- July 10, 1997 - Problems relating to the Main Control Room Emergency Ventilation radiation monitor were identified by the NRC. (See May 15, 1998, for additional issues and a violation resulting from this deficiency. Also, see September 12, 1997, for a related problem.)

- July 17, 1997 - During the SALP evaluation, the NRC found “...there were several instances where operating procedures, surveillances, and tests were not consistent with the design and licensing basis...However, some balance of plant equipment problems challenged operators, indicating continued attention to equipment performance is needed. Also, we found problems with the development and management oversight of efforts to implement the maintenance rule program.” (Hubert J. Miller, NRC, Regional Administrator, July 17, 1997.)

- July 24, 1997 - The NRC found: "...in one instance, an operator installing a jumper caused the loss of high pressure coolant injection automatic initiation capability for a short period of time. Our review of the issue found procedural guidance provided to the operator was lacking, in that, it did not specify how to install the jumper or precautions on possible problems that could occur. Maintenance personnel performed, well...However, in one instance a single control rod scrambled due to maintenance technicians pulling the wrong fuses during electrical isolation....Your evaluation and control of non-routine effluent/material release paths, such as sampling and analysis of sewage solids and burning of slightly contaminated oil, showed some weaknesses, indicating a need for further attention in this area....Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred...This violation is of concern because several grand master keys were not properly controlled." (Paul D. Swetland, Acting Chief, Projects Branch 4, Division of Reactor Projects, July 24, 1997.)

- August 14, 1997 - "...during surveillance testing, the diesel driven fire pump starting battery exploded shortly after the start of the pump. Operators immediately shut down the the pump and notified supervision...Plant management initiated a full root cause investigation for this event. Initial reviews by the investigation team determined that on June 25, predictive maintenance personnel had identified uneven battery electrolyte heating. Also, a separate action request had identified higher than normal current on the battery charger. maintenance recognized that the combination of high current and uneven heating was an indication of cell failure; however, no action was taken to accelerate the scheduled replacement of the battery. Further investigation revealed that the battery cables had a low resistance to ground , which could contribute to the premature failure of the battery. The diesel driven pump uses stranded 24 Volt truck batteries." (IR 50-277/97-06 & 50-278/97-06.)

- August 28, 1997 - At Unit-2, "operators experienced trips of the two running drywell chillers, resulting in a loss of drywell cooling for a period of several minutes." (IR 50-277/97-06 & 50-278/97-06.)

- August 29 and 30, 1997 - At Unit-2, "power was reduced to 90% for work on a condensate demineralizer." (IR 50-277/97-06 & 50-278/97-06.)

- September 1997 - "Earnings for the six months ended June 30, 1997 were \$1.02 per share as compared to \$1.08 per share for the corresponding period in 1996." (**Report to Shareholders**, C.A. McNeill, Jr., Chairman, and CEO.)

- September 2, 1997 - At Unit-2, "a fire occurred in the 3B circulating water pump motor." (IR 50-277/97-06 & 50-278/97-06.) (See November 6, 1995 and January 14, 1998 for related incidents.)

- September 11, 1997 - "PECO Energy Company (NYSE: PE), of Philadelphia, and British Energy, of Edinburgh, Scotland, announced today formation of a joint venture, AmerGen Energy Company, LLC, to pursue opportunities to acquire and operate nuclear generating plants in the United States." (Company Press release.) (See June 5 and October 3, 1997 and May 27, July 17, 1998, June 25, 1999, and June 9, 2000, for related developments.)

- September 12, 1997 - A Notice of Violation was issued dealing with PECO's "troubleshooting of the main control radiation monitor, during which and communication weaknesses led to a noncompliance with technical specifications...in a few instances, your staff did not formally review issues with potential for learning opportunities. Examples included the missing E-2 emergency diesel generator exhaust gasket, and inconsistencies between plant procedures and technical specifications associated with emergency diesel generator starting air reservoir pressure." (Clifford J. Anderson, NRC, Chief Projects Branch 4, Division of Reactor Projects.) (See July 10, 1997 and May 15, 1998, for related problems.)

- September 12, 1997 -At Unit-2, "power was reduced to approximately 60% power for hydraulic control unit maintenance and condenser waterbox cleaning." (See November 18, 1994; July 16, September 10 and October 25, 1996; and , September 12, 1997 for related incidents.) (IR 50-277/97-06 & 50-278/97-06.)

- September 12, 1997 - At Unit-2, "workers identified a minor leak in the HPSW [High Pressure Service Water] monitoring system caused by a slightly opened instrument valve and a missing threaded cap." (IR 50-277/97-07 & 50-278/97-06.)

- October 3, 1997 - The Financial Times of London identified PECO Energy Company as making a bid to purchase Three Mile Island from GPU Nuclear. Due to a confidentiality agreement, GPUN would not confirm the name of the company interested in purchasing TMI. (See July 5 and September 11, 1997 and June 17, 1998 for related developments.)

- October 8, 1997 - "Enron Corp. is seeking to takeover PECO Energy Co.'s Pennsylvania service area, offering to lower customers' electric rates by 20 percent and assume \$5.5 billion in Peco costs." *Patriot News*, October 8, 1997. (See November 28, 2001, for a related development.)

- October 15, 1997 - "We noted during this period two examples where personnel either failed to follow procedures or failed to take adequate self-checking measures, resulting in one case in the conduct of a surveillance test on the wrong unit. Moreover, two days after this inspection period ended, your staff identified an event in which a safety-related high pressure service water (HPSW) pump was electrically uncoupled without being isolated because contractor personnel thought they were working on a non-safety-related service water pump that was electrically isolated. This event highlighted weaknesses in procedural adherence, particularly in the use of work package documentation at the job site, self-checking, and a questioning attitude that led to multiple breaches in work process barriers.

"The HPSW event is of particular concern since it impacted a safety-related piece of equipment. **It also represented the third significant industrial safety event since late February at Peach Bottom**, (*bold faced added*), the other two being the unexpected start of a cooling tower fan while a worker was preparing to take an oil sample from the fan gear box, and the injection of chlorinated water into a circulating bay while two workers were conducting a pump inspection. (See December 16, 1997 for a related HPSW incident.) Management's attention to effectively correcting the work clearance process and worker performance weaknesses noted in these events is warranted, particularly given the increase in the number of work activities and contract workers during the Unit 3 outage." (NRC, Clifford J. Anderson, Chief Projects Branch 4, Division of Reactor Projects.)

- October 15, 1997 - "A discovery of a licensee operating their facility in a manner contrary to the Updated Final Safety Analysis Report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR. description. While performing the inspections discussed in this report, the inspector reviewed the application portions of the UFSAR that related to areas inspected. The inspector verified that the UFSAR wording was consistent with the observed plant practices, procedure and/or parameters. (IR 50-277/97-06 & 50-278/97-06.)

- October 20, 1997 - The potential for the suppression pool to be bypassed during a loss-of-coolant-accident at Unit-1 & Unit-2 was identified. PECO identified this event (#33121) as an "outside design basis" incident. (See August, 1999, for more information.

- October 29, 1997 - At Unit 3, PECO identified a temperature differential of 84 degrees F. "RPV [Reactor Pressure Vessel] coolant temperature was 163 degrees F with the 'B' recirculation loop temperature at 79 degrees F. (IR 50-277/98-06; 50-278/98-06; NOV.) (See March 23, 1998, for related problems and a Notice of Violation.)

- November 1, 1997 - A failure to trip at Unit-2 involving the Reactor Feedwater Pump Turbine, "was originally attributed to intermittent mechanical binding of some trip mechanism sub components." (IR 50-277/98-03; 50-278/98-03.)

(See April 1, 1997, for a related incident.)

- November 7, 1997 - "PECO Energy of Philadelphia had the highest number of justified consumer complaints in 1996 among electric utilities, as well as the longest response time to those complaints [Pennsylvania Public Utility Commission]." (*Patriot News*, November 7, 1997, B7.)

- November 9, 1997 - The unit 2 reactor scrammed. (See December 6, 1997, for root causes of scram.)

- November 28, 1997 - Unit 3 was shut down to replace the 'E' steam relief valve.

- December 1997 - "Earnings for the nine months ended September 30, 1997 were \$1.71 per share as compared to \$1.73 per share for the corresponding period in 1996." (PECO Energy, **Report to Shareholders**, Third Quarter 1997, C.A. McNeill, Jr., Chairman, President and CEO.)

- December 16, 1997 - Following an NRC inspection, the staff reported, "...the practice of permitting blanket approvals for overtime work on safety-related activities for multiple weeks with no hourly limit specified resulted in abuses that were considered a breach in the intent of the overtime authorization process." (02.3) (*Executive Summary*.)

Although the Agreement between PECO and the Commonwealth expired in 1993, Section 5.4 established "restrictions on the use of overtime for plant personnel who perform safety-related functions." (June 1989.)

- December 16, 1997 - During an NRC inspection, the staff observed: "... findings by your staff late in the Unit-3 refueling outage regarding the existence of cracking of three of the ten recirculation riser pump elbow welds posed a noteworthy challenge to your engineering organization and resulted in the development of a plant operating strategy that limited recirculation flow until a mid cycle outage can be performed in 1998.

*Continued on the following page...*

“Multiple examples of a violation of NRC requirements were identified during this period. Specifically, three examples of a failure to follow procedures were identified, two in the Operations area and one in the Maintenance area. We are concerned with these examples of procedure non-adherence given their impact on plant equipment and their potential industrial safety implications (i.e., one which directly caused a Unit 2 reactor scram [November 9, 1997 at 100% power] and another which significantly contributed to maintenance personnel inadvertently rendering a safety-related HPSW [high pressure service water] pump inoperable [September 22, 1997] without it being electrically isolated during the conduct of work.) (See October 15, 1997 for a related HPSW event.)

“This violation is cited in detail in the enclosed Notice of Violation and the circumstances are described in detail in the enclosed inspection report.” (NRC, Clifford J. Anderson, Chief, Projects Branch 4, Division of Reactor Projects.)

- December 23, 1997 - “...Unit 2 was shut down to replace the secondary pressure amplifier card and the potentiometer assemblies on the pressure control unit from the ‘B’ EHC [electro-hydraulic control] regulator.” (IR 50-277/97-08 & 50-278/97-08.) (See December 29, 1997 for a related incident.)

- December 23, 1997 - “...plant management chose to shut down Unit 2 due to problems with the pressure regulator control circuit. On December 15, the back up EHC [electro-hydraulic control] pressure regulator ‘B’ took control of reactor pressure without operator action.” (IR 50-277/97-08 & 50-278/97-08.)

- December 29, 1997 - “...all nine bypass valves unexpectedly opened at 155 psig EHC [electro-hydraulic control] pressure during the normal depressurization/cool down of Unit 2. Operations and engineering personnel failed to understand the effect of the EHC system of a temporary plant alteration...This lack of system understanding contributed to all bypass valves unexpectedly opening which resulted in a reactor vessel level transient.” (IR 50-277/97-08 & 50-278/97-08.)

- December 29, 1997 - “...Unit 2 was shut down to replace amplifier card and potentiometer assemblies.” (IR 50-278/97-08; 50-277/97-08.) (See December 23, 1997 for a related incident.)

- January 1, 1998 - "... the Unit 2 main turbine tripped on main oil pump low pressure during plant start-up after the turbine rolled to a speed of 1400 RPM. Operations personnel were unaware that the turbine had been rolling for over two hours just prior to the trip. This issue appeared to involve a failure of an instrument and control test document to restore the original [electro-hydraulic control] EHC [electro-hydraulic control] system alignment after testing and the failure of operations personnel to fully follow procedures. Concerns were also identified with the pulling of control rods to increase reactor pressure during this event and failure of operations personnel to recognize status of the main turbine or turbine control systems." (IR 50-277/97-08 & 50-278/97-08.)

"Several examples of weak control room oversight of activities were noted from the Unit 2 main turbine trip during start-up on January 1, 1998...1) The Control Room Supervisor directed the pulling of control rods to increase reactor coolant system pressure while the turbine condition remained known. 2) Shift turnover and the shift meeting occurred while the turbine was in this unknown condition even though members of the crew knew that the turbine had come off of the turning gear. 3) The crew with the watch during most of this event had not received any just-in-time training such as simulator runs even though this was the first reactor start-up for the Plant Reactor Operator and the Control Room Supervisor." (IR 50-277/98-01, 50-278/98-01.)

- January 2, 1998 - "... the unit 2 reactor operator failed to perform the technical specification (TS) surveillance requirements (SR) for verification of proper flow in the recirculation loops. The recirculation loops were not operated outside of the TS requirements during this period. However, it was unclear how station personnel determined the formal TR SRs were met and why operations personnel failed to review the TSs when unclear information was found in the surveillance test." (IR 50-277/97-08 & 50-278/97-08.) These actions violated SR requirements.

- January 2, 1998 - Operations personnel failed to take or record the readings for the Surveillance Test for "Daily Jet Pump Operability."

- January 3, 1998 - "...operations personnel discovered that the Unit 2 reactor operator (RO) failed to perform the technical specification (TS) surveillance requirement for verification of proper flow in the recirculation loops following start-up" (IR 50-277/99-01; 50-278/99-01.)

- January 4, 1998 - "...the main steam line bypass, BPV-1, unexpectedly opened approximately 25% several times while the Unit 2 reactor was raising reactor power from 96% to 100%. Instrument and control room technicians unknowingly introduced speed error bias in the speed control portion of the EHC [electro-hydraulic control] system after they tightened a loose connection during replacement activities for the EHC pressure control unit. Instrument and control personnel failed to understand what effect tightening the loose connection on the speed control would have on the speed bias signal and EHC system." (IR 50-277/97-08 & 50-278/97-08.)

- January 5, 1998 - "...during maintenance on the 2 'C' RHR heat exchanger, technicians found broken glass, an electrical extension cord, and metal straps on the RHR (shell) side of the heat exchanger. Technicians removed the glass but were unable to remove the cord and metal straps.

After further investigation, PECO determined that the foreign material had been previously identified in the heat exchanger in 1994." (IR 50-277/97-08 & 50-278/97-08.)

- January 5, 1998 - "Illinois Power said Monday it contracted an outside nuclear team from PECO Energy Co to manage its Clinton Power Station, which has been shut down since September 1996...Clinton is a 950-megawatt boiling water reactor. Water McFarland, vice president of PECO's Limerick Station, is Illinois Power's new chief nuclear officer. He assumes responsibilities immediately." (*Reuters*, January 5, 1998.)

"Under the three-year contract, which may be renewed for an additional five years, a core group of PECO Nuclear employees will provide management expertise to Illinois Power." (PECO Energy, 1997 Annual Report, February 2, 1998, p. 4.)

- January 12, 1998 - "While transferring a contaminated filter from the spent fuel pool to a shipping cask on January 12, 1998, an area radiation monitor (ARM) alarmed at 20 millirem per hour. Personnel working in the area moved to lower dose areas with the exception of the radiation technician and the overhead crane operator on the bridge. The radiation technician was monitoring radiation levels and informed the operator levels had not significantly changed." (IR 50-277/99-01, 50-278/99-01.)

- January 14, 1998 - At Unit 2, "power was reduced to 97% when condenser vacuum decreased after the 2 'C' circulating water pump failed to start and the pump discharge valve failed [to] open during post-maintenance testing." (50-277/97-08 & 50-278/97-08.) (See November 6, 1995 and September 2, 1997, for related incidents.)

- January 28, 1998 - "The practice of the control room supervisor leaving the main control room work station for brief periods without temporary relief from another senior reactor operator demonstrated weak oversight of control room activities.

"On January 28, 1998, the control room supervisor left the main control room work station without temporary relief for several minutes to verify acknowledgment of an expected alarm." The NRC identified a violation of technical specifications. (IR 50-277/98-01, 50-278/98-01.)

"...the NRC identified that a control room supervisor did not visually verify or verbally communicate alarm acknowledgment of an expected alarm that came in on Unit 3 because he was outside his designated work station without temporary relief."

(Severity Level IV violation, IR NOS. 50-277/98-01 AND 50-278/98-01.)

- January 29, 1998 - "On January 26, 1998, PECO Energy's Board of Directors voted to reduce the Company's quarterly common stock dividend from 45 cents per share to 25 cents per share, effective with the first quarter dividend, payable on March 31, 1998 to shareholders of record on February 20, 1998. This is a result of the Pennsylvania Public Utility Commission (PUC) orders issued in December and January...

- January 30-31, 1998 - "...operators reduced power to about 93% to allow for repairs of the 2C circulating pump discharge valve." (IR 50-277/98-01, 50-278/98-01.)

- February 6, 1998 - At Unit 2, "power was reduced to about 90% to investigate trip problems with the 2A reactor feed pump turbine." (IR 50-277/98-01, 50-278/98-01.)

- February 13, 1998 - "Unit 3 began the period operating at 94% power. This unit was operating at less than full power due to recirculation system flow rate limitations because of weld cracks on the jet pump risers. On February 13, power was increased to 100%, as allowed by the operating strategy for the jet pump riser cracks." (See March 6, 1998 for follow-up incident.) (IR 50-277/98-01, 50-278/98-01.)

- March, 1998 - "The Company reported a net loss for 1997 of \$1.5 billion or \$6.80 per share. Included in these results was an extraordinary charge of \$3.1 billion (\$1.8 billion net of taxes), or \$8.24 per share, in the fourth quarter to reflect the effects of the December 1997 PUC order (as revised in January 1998) in the Company's restructuring proceeding." (**Report to Shareholders**, C.A. McNeill, Jr., Chairman, President and CEO, PECO Energy.)

- March 1998 - "PECO personnel identified that five Fire Areas in the plant, containing 25 rooms, did not contain automatic fire detection systems...PECO intends to submit an exemption request...for the identified Fire Areas." (IR 50-277/98-10, 50-278/98-10; NOV.)

- March 6, 1998 - Power at Unit 3 was reduced to 94%.

- March 11, 1998 - PECO Energy Company announced it was counter suing Great Bay Power Corporation "to prevent it from ending a power marketing agreement.

"PECO, which is seeking more than five million in damages for breach of contract and for the loss of goodwill and harm to its reputation, filed the suit in the U.S. District Court of New Hampshire.

"This suit comes a week after Great Bay sought to end the exclusive marketing agreement to sell Great Bay power generated at the Seabrook 1 Nuclear Power Plant in Seabrook, N.H. [Great Bay owns 12.1% of Seabrook.]

"Great Bay also sued PECO last week for breach of contract, charging PECO entered into a number of wholesale agreements in its own name without telling Great Bay or submitting bids on behalf of Great Bay and that PECO 'failed to offer Great Bay's power to customers as required under the marketing agreement' " (*Reuters*, March 11, 6:07 Eastern Time.)

- On June 3, 1998, Great Bay Power Corporation withdrew its lawsuit against PECO. John A. Tillinghast, Great Bay's Chairman said, "We believe PECO acted properly as our marketing agent. And seems clear that the judge in our case is inclined to find that PECO did not breach the marketing agreement...PECO's acceptance of our proposal lets us get started on our own marketing strategy. We appreciate the value PECO has provide Great Bay over the past two years and wish them well in the future." (PECO Energy, Press Release, June 3, 1998.)

- March 13, 1998 - Unit 3 was "shutdown for outage 3J12, to perform repairs to the jet pump risers." (Set February 13, 1998 for related information.) (IR 50-277/98-01, 50-278/98-01.)

- March 21, 1998 - At Unit-2, "unit load was reduced to perform control rod pattern adjustments, waterbox cleaning, and reactor feed pump turbine testing." (IR 50-277/98-02; 50-278/98-02.)

- March 22, 1998 - The NRC noted "reactor engineers did not recommend positive actions to reduce a thermal limit ratio when approaching the Technical Specifications limit, which did not meet operations department expectations for conservative plant operations." (IR 50-277/98-02; 50-278/98-02.)

- March 23, 1998 - PECO “identified that they failed to properly implement the improved Technical Specification Surveillance Requirement 3.4.9.4 for the start of the first recirculation pump. Between January 18, 1996, and March 23, 1998, operations personnel were not verifying that the temperature differential between the reactor coolant in the recirculation loop being started and the reactor pressure vessel coolant was within 50 degrees F. On October 27, 1997, the ‘B’ recirculation pump was started with a differential of 84 degrees F. Although this did not exceed design limits nor impact fuel performance, it was a violation of Technical Specification Surveillance Requirement 3.4.9.4. (Section 08.1). (IR 50-277/98-06; 50-278/98-06; NOV.) (See October 29, 1997, for a precursor event.)

- March 25, 1998 - At Unit-3, “foreign material was found in the 3A core spray pump. (IR 50-277/98-02; 50-278/98-02.) (See May 1, 1998 regarding a violation related to this event. (Also, see December 11, 1998, for a related incident.)

- March 25, 1998 - A Notice of Violation was issued for cold weather preparations’ procedural noncompliances. (IR 50-277/98-11, 50-278/98-11).

- March 30, 1998 - “...violations of NRC requirements occurred, namely, (1) the failure to perform certain required tests; and (2) the creation of inaccurate records to indicate that the tests were performed.” Charles W. Hehl, NRC, Director, Division of Reactor Projects.)

“... inspectors noted that the control room staff was not aware that maintenance personnel were performing post-maintenance test cycling of vacuum relief valve...during the drywell walkdown. Communications between maintenance and control room personnel were not effective...

“... inspectors noted increased noise in the control room during peak activity periods. During these periods, there were 15 to 20 people in the control room. During these periods order in the control room was challenged. During periods with fewer personnel in the control room and decreased activity, the inspectors observed that operation of the unit became more deliberate.” (IR 50-277/98-02; 50-278/98-02.)

- March 30, 1998 - A violation was recorded by the NRC form PECO's failure "during several months to maintain the 2' A' Reactor Feedwater Pump Turbine High Water Level Trip function operable as required by Technical Specification...We concluded during this inspection that your corrective actions for the first two failures were not comprehensive. There were a number of previous opportunities to identify and correct the root cause of these events particularly through at-power verification testing. Also, we noted that the 2' A' feedwater system change of status maintenance to a maintenance rule (a) 1 system was not timely. Although this change met your administrative requirements, we viewed the status change as untimely based on the technical specification significance." (Charles W. Hehl, NRC, Director, Division of Reactor Projects.)

- April 16, 1998 - The NRC "observed that the Unit 2' B' stream jet air ejector main steam supply header control room valve...was not in its expected position...This item remains unresolved pending further progress in these investigations..." (IR 50-277/98-02; 50-278/98-02.)

- April 27, 1998 - At Unit-2, "unit load was reduced due to an inoperable control rod." (IR 50-277/98-02; 50-278/98-02.)

- April 28, 1998 - "The 3A stator water cooling pump tripped during system troubleshooting efforts on April 28, 1998, due to weaknesses both in operations review of the work and with communications regarding restrictions on work scope." (IR 50-277/98-06; 50-278/98-06; NOV.)

- May 1, 1998 - "We identified five violations of NRC requirements during this inspection. The first violation involved the failure of a control room supervisor to verify that a Unit 3 expected alarm was acknowledged due to the fact that he was outside of his main control room work station without temporary relief.

"The next two violations were the result of operations personnel failing to perform technical specification surveillance requirements for the verification of proper recirculation loop flow during Unit-2 start-up on January 2, 1998.

"The fourth violation contained several examples of inadequate procedures and control room operators failing to implement operations procedures which resulted in the unexpected trip of the Unit 2 main turbine on January 1, 1998. The procedures were inadequate since they failed to restore the Electro-Hydraulic Control system to the alignment requirement for reactor start-up. Also, operations personnel failed to adequately implement procedures when they did not recognize the abnormal main turbine status, position of the turbine control valves, or the selection of the speed set for the EHC system for several shifts prior to the main turbine trip.

“We were concerned with the violations described above, especially the Unit 2 main turbine trip, because they all showed weak oversight of the control room activities. We previously documented in Inspection Report 50-277 (278)/97-07 where inadequate oversight of operator activities contributed to a scram of the Unit 2 reactor during swapping of a station battery charger.

“The last violation resulted from Unit 3 exceeding the licensed power level up to 0.6% between October 22, 1995 and January 21, 1997. PECO Energy Company operated the reactor at a steady state power level up to 100.6% of rated power. We were concerned that your staff failed to recognize errors in the calibration of feedwater temperature instruments even after deficiencies were identified with the equipment used to calibrate these instruments. The inaccurate feedwater temperature instruments resulted in power levels above the licensed limit for over 15 months.” (NRC, Clifford J. Anderson, Chief, Projects Branch 4, Division of Reactor Projects.)

Two “apparent violations” were identified during a special NRC inspection report.

“These violations resulted from: 1) the failure to prescribe and accomplish the ECCS [emergency core cooling system] strainer replacement modification with documented instructions and procedures appropriate to the circumstances to prevent the introduction of foreign materials into the core spray system, and 2) the failure to maintain the 3A core spray pump operable as required...” [See March 25, 1998, for information on the 3A core spray incident.] (NRC, Charles W. Hehl, Director, Division of Reactor Projects.)

- May 5, 1998 - “...during testing, operators observed candle-sized flames on the E2 EDG exhaust manifold.” (IR 50-277/98-06; 50-278/98-06; NOV.) (See June 9, 1998, for a related incident.)

- May 12, 1998 - At Unit 2, “unit load was reduced to withdraw a control rod following repairs to one its scram solenoid pilot valves.” (IR 50-277/98-06; 50-278/98-06; NOV.) (See June 1, 1998, for a related incident, and March 22, 2000, for a similar challenge).

- May 14, 1998 - “Four licensed operators missed training for the two year requalification period that ended in March 1996 and never made up the missed training within a reasonable time thereafter. This was unresolved pending NRC staff review for enforcement action with respect to 10 CFR 55.59 a (1). (IR 50-277/98-04; 50-278/98-04 and NOV.)

- May 14, 1998 - The NRC identified two violations relating to licensee operator requalification training (LORT). "The first violation involved a failure to assure sufficient differences in the job performance measure (JPM) portion of the operating test administered to different crews on different weeks. This violation is of concern because of the potential for precluding the identification of retraining needs. The second violation involves the failure of your operating test to evaluate SROs [senior reactor operators] fulfilling the role of the control room supervisor in their ability to execute the emergency plan. This violation is of concern since the SROs may be called upon to execute the plan in the absence of shift managers." (IR 50-277/98-04; 50-278/98-04.)

- May 14, 1998 - The NRC identified a violation "for failure to include the area of radiation monitoring system within scope of the maintenance rule program...This violation is of concern since scoping problems of this type have been identified through recent operating experience and findings from NRC maintenance rule baseline inspections and the violation represents an apparent failure to incorporate this information into your program." (IR 50-277/98-04; 50-278/98-04; and NOV.)

- May 15, 1998 - "...operations personnel identified that the trip relay for the Main Control Room Emergency Ventilation (MCREV) radiation monitor had not been in the tripped status for approximately 28 hours while the 'B' channel radiation monitor was inoperable." This was a violation of the technical specifications.

"The operations personnel installing the jumper to initiate a Division II isolation trip of the MCREV radiation monitor did not perform, nor did the procedure instruction require, a positive verification that the trip was properly inserted. The corrective actions from the July 10, 1997 event were not comprehensive enough to prevent the subsequent event. (Section 02.1). (IR 50-277/98-06; 50-278; 98-06; NOV.) (Also see September 12, 1997; June 7 & July 17, 1998 for related problems.)

- May 16, 1998 - "During a Unit 2 power down evolution on May 16, 1998, operators reduced speed on an incorrect reactor feed pump, resulting in a reactor level excursion and recirculation system runback. The event was indicative of poor operator performance, reflecting weaknesses in communications, self-checking, and peer/supervisory review." (IR 50-277/98-06; 50-278/98-06; NOV.) (See related incidents on March 17, 1999; March 4, 1996; June 7 and July 13, 1998.)

- May 19, 1998 - The NRC issued a “confirmatory order modifying the license of Peach Bottom Units No. 2 and No. 3 requiring that the Company complete final implementation of corrective actions on the Thermo-Lag 330 issue by completion of the October 1999 refueling of Peach Bottom Unit No. 3”. (PECO Energy Company, Form-10/K-A, p. 10). (See September 12, 1994, October 1, 1996, October 12, 1999, and July 21, 2000, for background information.)

- May 22, 1998 - Unit power was reduced at Unit 2 for condenser waterbox cleaning.

- May 27, 1998 - “The U.S. Justice Department on Wednesday said it sued Philadelphia-based PECO Energy Co (PE - news) for more than \$67 million in damages because the company allegedly reneged on an agreement to buy a share [30% interest in the River Bend nuclear power plant owned by Cajun Electric Power Cooperative, Inc.] of a Louisiana nuclear power plant.” (*Reuters*, Wednesday May 27, 1998, 7:55 pm, Eastern Time.) (See June 5, September 11, and October 3, 1997 and May 27 and June 17, 1998 for background information and related developments). (Cajun update can be found on May 27, 2000).

- May 29, 1998 - At Unit 3, “unit load was reduced to clean condenser water boxes.” (IR 50-277/98-06; 50-278/98-06; NOV.)

- June 1, 1998 - At Unit 2, “unit load was reduced following a scram of a control rod during reactor protection system testing. The control rod had a leaking scram solenoid pilot valve. The unit power was reduced on June 5 to facilitate control rod hydraulic control unit (HCU) on-line maintenance to replace several scram solenoid pilot valves.” (IR 50-277/98-06; 50-278/98-06; NOV.) (See May 12, 1998, for a precursor event.)

- June 7, 1998 - “...the 3A recirculation pump ran back to 30% speed due to the unexpected loss of a 500 kv line during an electrical storm and the slow opening of the 500 kv breaker. The 3B recirculation pump remained at full speed during this event. Due to the difference in pump speeds of the Unit 3 pumps, the flows in the recirculation loops were significantly mismatched. The recirculation loop flows remained mismatched outside of Technical Specification Surveillance Requirement (SR) 3.4.1.1 for over 12 hours.” This was a another violation of Technical Specifications. (IR 50-277/98-06; 50-278/98-06; NOV.) (See May 16 and July 13, 1998, for related incidents.)

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“Engineering personnel failed to recognize the potential for high vibration stresses on the ‘A’ jet pump loops due to the large recirculation flow mismatch following the 3A recirculation pump runback on June 7, 1998. The potential for recirculation flow mismatch to cause excessive vibration of the jet pumps and the jet pump riser braces was described in the Peach Bottom Design Basis Document (DBD) for the recirculation system. This lack of understanding of the effects of this mismatch contributed to the failure of engineering personnel to provide the necessary technical information to operations personnel...

“ Also, Unit 3 experienced a runback of the 3A pump in December 1993 due to the loss of power to the same relay that dropped out during this event. Part of the corrective action for this event was to install a modification which would provide a non-interruptible power supply to the recirculation pump runback relays. This corrective action, which could have prevented the 3A runback on June 7, was never performed. (Section E1.1). (IR 50-277/98-06; 50-278/98-06; NOV.) (Also, see March 17, 1995 and March 4, 1996 for related events.)

- June 8, 1998 - “... the 3 start-up transfer became inoperable following a severe electrical storm, but this was not recognized by operators until June 22, 1998. On June 15, the inoperable 3 start-up transformer was aligned to the 2 start-up and emergency source for over nine hours to support off-site maintenance work.” The NRC “treated” this event as a **Non-Cited Violation**. (IR 50-277/98-07, 50-278/98-07.)

An LER (96-005) issued on May 7, 1996, identified a similar problem.

- June 9, 1998 - The NRC identified two violations during an inspection. “The first violation involved a high pressure coolant injection (HPCI) system operating procedure [discovered by the NRC on March 22, 1998] that did not provide adequate instructions regarding the HPCI pump turbine vibration monitoring system. The second violation was the failure of health physics personnel to follow radiation area control procedures regarding posting of an open door to a potentially high radiation area.

“We are also concerned about a number of instances of plant valves being identified out of their required or expected position. Although several of these valves were in non-safety related systems, three valves were in safety related systems. We determined that, taken collectively, these items represented a weakness in plant status control.” (Clifford J. Anderson, Chief, Projects Branch 4, NRC, Division of Reactor Projects.)

- June 9, 1998 - "...plant personnel and the inspectors observed smoking and small flames on the E1 EDG exhaust manifold flanges, and the oil occasionally flashed and self-extinguished as the temperature of the exhaust manifold increased during EDG loading. The smoking and leakage essentially stopped several minutes after the EDGs were fully loaded." (See May 5, 1998, for a precursor event.)

"Some emergency diesel generator (EDG) oil leak reduction strategies were not well-implemented or well-communicated to operations personnel. These factors contributed to oil leaks and flames observed on the E2 and E1 EDG exhaust manifolds in May and June, 1998, respectively." (IR 50-277/98-06; 50-278/98-06; NOV.)

- June 12, 1998 - The NRC proposed a **\$55,000** fine for PECO for two program deficiencies that led to the impaired performance of a Unit 3 emergency cooling pump...The violations were identified during NRC inspections conducted between February 12 and March 3 and from March 30 to April 24 [1998]...Specifically, the violations stem from problems that affected a Unit 3 core spray pump. The component is part of the unit's core spray system, which would be used to keep the reactor core covered and cooled during a loss-of-coolant accident." US NRC, Office of Public Affairs, Region I, King of Prussia, PA, June 12, 1998.)

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(For more detailed information on these problems, see NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY - **\$55,000**, June 11, 1998, NRC INSPECTION REPORT NOS. 50-277/98-03 & 50-278/98-06.)

- June 22, 1998 - "...a reactor building equipment operator discovered during routine operator rounds that the Unit-3 reactor core isolation cooling system mechanical over speed trip tappet was not fully reset. Station personnel determined that the reactor core isolation cooling system had been inoperable since May 4, 1998 which was the last time the over speed trip function was manipulated and successfully tested." (IR 50-277/98-07, 50-278/98-07.) The NRC "treated" this incident as a **Non-Cited Violation**.

- July 9-10, 1998 - The NRC observed "instrument and plant control personnel failed to comply with the technical specification action time requirements for placing ; 'A' channel of the main control room emergency ventilation (MCREV) system in trip within six hours of making the channel inoperable...This non-reporting, licensee identified and corrected violation is being treated as a **Non-Cited Violation...**" (IR 50-277/98-02, 50-278/98-02.)

- July 10-11, 1998 - Power was reduced to about 60% at Unit-2 for condenser waterbox cleaning.

- July 11, 1998 - Unit load was reduced to 74% at Unit-3 for main steam isolation valve testing.

- July 13, 1998 - "A reactor level water excursion on July 13, 1998, during transfer between feedwater control system computers revealed that instrument and control personnel did not have sufficiently specific written guidance or criteria on computer signal differences for performing the computer transfer. Instrument and control personnel relied on inappropriate assumptions on acceptable computer signal differences." (IR 50-277/98-07, 50-278/98-07.) (See May 16 and June 7, 1998, for related incidents.)

**- July 17, 1998 - AmerGen Energy announced that it reached an agreement with GPU to purchase TMI-1 for \$100 million.** The proposed sale includes \$23 million for the reactor, and \$77 million, payable over five years, for TMI-1's nuclear fuel. (Background information can be found on: September 5 & 11 and October 3, 1997, and May 5 & 27, 1998.)

- July 17, 1998 - "...the 2A condensate pump had to be shutdown quickly due to rapidly climbing temperatures on the thrust bearing." (IR 50-277/98-07, 50-278/98-07.)

- July 22, 1998 - "... hydrogen water chemistry injection into the unit 2 feedwater system unexpectedly isolated during application of a clearance for the 2A reactor feedwater pump." (IR 50-277/98-07, 50-278/98-07.)

- August 6-19, 1998 - During a walkdown, the NRC determined "that the actual wiring did not match the schematic drawings. Although the schematics showed that the wiring for the MOVs [motor operated valves] on both units were the same, the as-found did not match the schematic drawings for 3 CS suction MOVs." (IR 50-277/98-08, 50-278/98-08.)

"PECO experienced three failures of motor operated valves (MOV) during 2R12. One other MOV was in a significantly degraded condition when inspected. All of these MOVs were safety-related." (IR 50-277/98-10; 50-278/98-10; NOV.)  
(See January 21, 1993, for a related incident.)

- August 10, 1998 - During the calibration of the 'C' detector, the [chemistry] technicians inadvertently removed and dropped the "D" detector. The technicians performing this work did not stop and notify the control room operations personnel or Chemistry Supervision that they had removed the "D" detector and dropped it...The behavior of the technicians to not tell details about the event for several days, and only when asked, was not acceptable. The licensee corrective actions were narrowly focused on the chemistry department and did not include the other departments at the station. Procedural non-adherence has been an issue at the station for the past year." (IR 50-277/98-10, 50-278/98-10.)

The NRC issued a Violation.

- August 12, 19, and 24, 1998 - Access and alarm failures to protected areas and vital door areas occurred as a result of failures with the #1 security multiplexer. (IR 50-277/98-08, 50-278/98-08.)

- August 14, 1998 - At Unit-3, a loss of service water to a main generator hydrogen cooler resulted in a reduction of unit load to 84%.

- August 19, 1998 - at Unit-3, "Operators entered the 'B' non-regenerative heat exchanger room and found the heat exchanger vent valves partially open, instead of closed, as required. Upon further investigation, operations personnel identified that these valves were left out of position due to poor configuration control of the system while preparing for maintenance activities." (IR 50-277/98-08, 50-278/98-08.)

A Notice of Violation was issued.

- August 20, 1998 - The Reactor Water Cleanup (RWCU) system at Unit-3 was being returned to service, when an automatic isolation "occurred due to a high flow condition." (IR 50-277/98-08, 50-278/98-08.)

A Notice of Violation was issued.

- August 21, 1998 - Unit load was reduced due to a degraded cooling of the 3C main transformer. At Unit 3, "operators commenced a down power maneuver due to cooling of the main transformer. The reduced load prevented a loss of the main transformer and plant transient when the deluge system activated." (IR 50-277/98-08, 50-278/98-08.)

In other words, "The #6 oil pump had failed due to a burnt wire and when then operator, following the alarm response card, switched the local control to manual, all of the cooling fans and oil pumps tripped off."

- August 22, 1998 - An operator "inadvertently shutdown the 3C drywell chiller. (IR 50-277/98-08, 50-278/98-08.) The NRC concluded, "An engineering evaluation for a similar event that occurred on March 25, 1997, was not effective to preclude the August 22, 1998 event."

- August 23, 1998 - "Weaknesses in maintenance planning and work practices led to a significant water leak on the station fire main on August 23, 1998. Water from the leak entered the safety related emergency service water/high pressure service water pump house via underground electrical conduits and degraded penetration seals." (IR 50-277/98-08, 50-278/98-08.)

A Notice of Violation was issued...

- August 23, 1998 - "... the motor driven fire pump unexpectedly started during the post-maintenance testing of the H-1 fire hydrant. Neither the work order or the routine test procedure contained any documentation to inform operators that the motor driven fire pump could start during the hydrant post maintenance testing nor did these documents contain instructions to fill and vent the fire system after work was performed." (IR 50-277/98-08, 50-278/98-08.)

- August 24, 1998 - The torus/drywell vacuum breaker "lost its 'seated' indication." Six days later, although required by technical specifications, "operations personnel determined that the actions to verify that the vacuum breakers were closed had not been performed..." (IR 50-277/98-08, 50-278/98-08).

The NRC "treated" this problem as a **Non-Cited Violation**.

- September 3, 1998 - In the first eight months of 1998, "PECO has cut its dividend nearly in half, announced 1,200 job cuts, and written off \$3.1 billion in assets." (*Patriot News, Business*, September 3, 1998. (See June 13, 2001, for more job reductions).

- September 15, 1998 - At Unit-2, the reactor water cleanup system automatically isolated. PECO found that this incident was not directly related to an event that occurred on December 1, 1998. (IR 50-278/98-11, 50-278/98-11).

- October 6, 1998 - During an alternate decay heat removal test (ADHR), "the inspectors observed the performance of an abnormal operating procedure..." (IR 50-277/98-10, 50-278/98-10; NOV.)

- October 12-22, 1998 - Three fuel movement errors occurred during this period. "These errors were caused by a failure to properly verify component location and orientation as required by procedure." The NRC treated this incident as a "no-cited violation." (IR 50-277/98-10, 50-278/98-10; NOV.) (See October 22 and 24, 1998.)

- October 14, 1998 - While restoring the 2B RHR [residual heat removal] subsystem, "operations personnel discovered several hundred gallons of water on the Unit-2 torus room floor. After further investigation, operators discovered that four RHR header vent valves had been left open during the performance of a system fill and vent evolution...The inspectors determined that this event was indicative of on-going challenges at the station in the area of system status and configuration control. Similar issues were cited in Notices of Violation in NRC Inspection Reported 50-277(278)/98-08 and 98-01. The inspector concluded that PECO did not have sufficient time to fully implement corrective actions for these previous issues. Therefore, this event was not subject to formal enforcement action." (IR 50-277/98-10, 50-278/98-10; NOV.)

A Notice of Violation was issued...

- October 16, 1998 - "...during a routine tour of the reactor building, the inspectors identified a minor leak on the 2 'D' RHR loop. (IR 50-277/98-10; 50-278/98-10; NOV.)

- October 22, 1998 - "...the refueling floor operators removed a fuel bundle at core location 23-50 (southwest orientation) rather than the the specified 23-52 (southeast orientation.) The LSRO, noting the hole left by the removed fuel bundle, discovered that the wrong bundle had been fully removed for the core." (IR 50-277/98-10; 50-278/98-10; NOV.) (See October 12 and October 24, 1998, for repetitive incidents.)

- October 24, 1998 - "...core alterations were suspended for a third time due to a mis-oriented fuel bundle in the spent fuel pool. (IR 50-277/98-10; 50-278/98-10; NOV.) (See October 12 and 22, 1998, for repetitive incidents.)

- October 25, 1998 - At unit-3, the "E33 bus was inadvertently tripped during the performance of a surveillance procedure that functionally trip tested E32 and E324 bus over current relays. This resulted in an 'A' channel half scram, a full reactor water clean up isolation, loss of the 'C' standby gas treatment fan, an inboard primary containment isolation system group 3 isolation and subsequent loss of reactor building ventilation, and a half primary containment isolation system group 1 isolation that did not cause any valve motion."

The NRC did not issue any violation. "However, inadequate self-checking and peer checking by the instrument and control technicians performing the surveillance procedure were determined to be the root cause of the event." (IR 50-277/98-10, 50-278/98-10; NOV.)

- October 28, 1998 - The NRC identified a violation which "involved the failure of the radiation protection technicians to fully comply with a procedure associated with source checking of instruments used to survey incoming shipments of radioactive material."

Additionally, the NRC noted that there 56 "control room deficiencies" and "critical control room deficiencies" scheduled to be corrected during the most recent refueling outage. (IR 50-277/98-08, 50-278/98-08.)

- October 28, 1998 - The use of an improperly sized jumper led to an unplanned core spray loop inoperability and "extended the inoperability period for all four emergency diesel generators (EDG)." (IR 50-277/98-10, 50-278/98-10; NOV.)

- November 7, 1998 "...operations personnel in the Unit 2 control room observed that the megawatt electric output did not agree with the reactor core thermal power." (IR 50-277/98-11, 50-278/98-11.) The NRC "treated" this incident as a **Non-Cited Violation**. (This was the *fifth Non-Cited Violation* since June 1998. Please refer to November 30, 1998, and July 27, 1999, for more data on "**Non-Cited Violations**".)

- November 17, 1998 - "There was one deficiency identified during the November 17, 1998, plume exposure pathway exercise which was resolved on March 16, 1999, during a remedial [emergency preparedness] drill. Also, there were 27 Areas Requiring Corrective Action (ARCA) identified..." (*FEMA Final Exercise Report for the November 17, 1998, Peach Bottom Power Station Plume Exposure Pathway Exercise.*)

- November 27, 1998 - "...operators shut down Unit 3 to repair a nitrogen leak on an air opened valve inside the drywell." (See May 11, 2000, for a related incident). (IR 50-277&278/98-11.)

- November 30, 1998 - "...inadequacies in a breaker manipulation procedure lead to an unexpected loss of one off-site power source and several emergency safety feature actuations." (IR 50-277/98-11, 50-278/98-11). The NRC "treated" this incident as a Non-Cited Violation. (This was the *sixth Non-Cited violation* since June 1998). (Please refer to November 7, 1998, and April 6 & July 27, 1999, for data on "**Non-Cited Violations**".)

- December 1, 1998 - The reactor water cleanup system "isolated occurred as operators were opening the system inboard and outboard isolation valves." According to PECO, his event was not directly related to an incident that occurred at the RWCU on September 15, 1998. (IR 50-277/98-11, 50-278/98-11).

- December 6, 1998 - At Unit 3, a control rod worth minimizer rod block occurred during a control rod drift alarm test. (IR 50-277/98-11, 50-278/98-11).

- December 11, 1998 - "A fire watch was found asleep in the cable spreading room by inspectors." (IR 50-277/98-10; 50-278/98-10; NOV.) (See December 18, 1993 and August 4, 1994, for related developments.)

- December 11, 1998 - "Contractor personnel performing modification work on the Unit-2 scram air header exhibited poor foreign material control practices, contrary to specific work order instructions. Weaknesses in contractor oversight were identified by these poor practices. (IR 50-277/98-10, 50-278/98-10; NOV.) (See March 25 and May 1, 1998, for related incidents.)

- December 19, 1998 - Unit load at Unit 2 “was reduced to 60% (See also January 2, 1999) to repair a leak on the B3 feedwater heater extraction steam line.” (IR 50-277/98-11, 50-278/98-11.)

- December 27, 1998 - Both Units were at 100% when one (of two) emergency auxiliary transformers failed. This incident precipitated a station blackout and the inoperability of an off-site power source. (IR 50-277/98-11, 50-278/98-11.)

- December 30, 1998 - FEMA’s Final Exercise Report For The Spring 1998 identified eight Areas Requiring Corrective Action (ACRA).

- December 31, 1998 - PECO reported “a charge of \$125 million (\$74 million of net income taxes) for its Early Retirement and Separation program relating to 1,157 employees.” (PECO Energy Company, Form 10-K/A, 1999, p. 77).

- January 2, 1999 - Unit load was reduced again (See December 19, 1998) to 65% to allow repairs to the main steam turbine #3 control valve. (IR 50-279/98-11, 50-278/98-11.) the system inoperable.”

- January 19, 1999 - “The inspectors reviewed an event in which the Unit 2 HPCI system gland seal condenser lower head gasket developed a significant leak, prompting operators to declare the system inoperable.” (IR 50-277/99-01, 50-278/99-01.)

- January 21, 1999 - “...the station made a four hour non-emergency 10 CFR 50.72 report to the NRC when a damper in the flow path from the Unit 2 reactor building ventilation to the standby gas treatment system (SGTS), failed to open.” (IR 50-277/99-01, 50-278/99--01.)

- January 29, 1999 - An “outside design basis” event (# 35335) was reported for Unit-2. (See August, 1999, for more information.)

- February 1, 1999 - The NRC issued a Violation and stated their “concern”:

- 1) three licensed operators failed to complete your facility licensed operator requalification program for the period April 1994 through March 1996 and the training was not made up until April 1998, in some cases; 2) the failure was due to a program inadequacy (systematic cause) and the inadequacy apparently caused an inaccurate license renewal application to be submitted to the NRC upon which the NRC issued a renewed operator license.

(Curtis J. Cowgill, NRC, Chief, Projects Branch 4, Division of Reactor Projects.)

- February 1, 1999 - An NRC inspection team found two examples in which RCIC [reactor core isolation cooling] system design basis information was not properly translated into procedures." A Notice of Violation was issued. (50-277/98-09, 50-278/98-09 & NOV).

- February 8, 1999 - During Y2K testing of the Unit-2 rod worth minimizer system, a "seven hour lockup of the plant monitoring system (PMS) computers and interruption of data to PMS-supported systems" occurred. The problem was attributed to "an information systems engineer [who] did not adhere to station policy regarding stopping of testing when unexpected conditions occur." (IR 50-27(278)/99-02.)

- February 18, 1999 - During an surveillance test, "the 3 B core spray pump breaker malfunctioned in that it failed to close." (IR 50-277(278)/99-02.)

- February 20, 1999 - Unit-2, "unit load was reduced to 60% to facilitate control rod scram time testing, reactor feedwater pump turbine testing, a main steam drain tank valve repair, and a control rod sequence exchange." (IR 50-277(278)/99-02.)

- March 25, 1999 - "NRC Inspection Report 50-277 (278)/98-01 cited a violation of the Unit 3 operating license for exceeding the licensed power level by as much as 0.6% for a period of about 18 months. This condition occurred as a result of inaccurately calibrated feedwater temperature instruments." (IR 50-277/99-01, 50-278/99-01.) (See related developments on January 1 and June 4, 1997, and May 1, 1998.)

- March 27, 1999 - Unit-2, "unit load was reduced to 62% power to allow condenser waterbox cleaning and reactor feedwater pump turbine work." (50-277(278)/99-02.)

- March 3, 1999 - The PUC voted "to give PECO Energy Co. a reproof for running misleading advertisements about electric competition last fall." (Patriot News, March 5, 1999.)

- March 3-4, 1999 - Unit -3 was reduced to 92% power for load drop activities and "repair a minor steam leak on the feedwater level switch flange." (50-277/(278)/99-02.)

- March 11, 1999 - Documentation of two Security Level IV violations were reported by the NRC: 1) Failure to Energize Trip Relay for Main Control Room Emergency Ventilation; and, 2) Failure to Properly Maintain Procedures for High Pressure Coolant Injection (HPCI) System Manual Operation.

- March 12, 1999 - At unit-3, "RCIC [Reactor Core Isolation Cooling] system isolation occurred during realignment of the system following back seating of an inboard steam isolation valve." (50-277(278)/99-02.)

- March 18, 1999 - The potential for a fire from flooding was identified at Units 2 & 3, and classified as an "outside design basis" event. (#35485.) (See August, 1999, for more information.)

In addition, "Between March and October 1998, PECO engineering identified five fire areas, containing cables for safety-related or safe shutdown equipment that did not have automatic fire detections systems as required..." (IR 50-277 & 278/99-05.)

- April 6, 1999 - Security staff "detected a disabled a vital door area door alarm in Unit 3. The door alarm function was disabled for approximately six days...This Security Level Violation IV is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. (This was the *seventh Non-Cited Violation* since June 1998). (See November 30, 1998, for related events.) (NCV-50-278/99-0401)." (IR 50-277/99-04; 50-278/99-04).

- April 15, 1999 - A Fitness-for-Duty incident involving controlled substances and three used syringes was reported to the NRC. (See May 10, 1999, for results of laboratory tests.)

- April 17, 1999 - "...Unit 3 load was reduced to approximately 83% power for a control rod pattern adjustment and to repair an air leak on a control rod hydraulic control unit." (IR 50-277/99-04; 50-278/99-04).

- April 25, 1999 - "...a high temperature alarm (greater than 500 degrees F) was received for the Unit 3 control rod drive (CRD) 26-11." (IR 50-277/9-04; 50-278/99-04).

- May 6, 1999 - "During the inspection, the NRC reviewed a violation that your staff identified involving the Unit 2 rod block monitoring system being inoperable for 29 of the 185 control rods. Since this finding involved a Severity Level III Violation of NRC requirements, it could be considered for escalated enforcement including a civil penalty." (Exercise of Enforcement Discretion Related to IR 50-277; 278/99-02.)

"A wiring error **dating back to original construction** was discovered which resulted in non-conservative inputs to channels of the Unit-2 rod block monitor for 29 of 185 control rods." (**Bold face type added.**) (50-277(278)/99-02.)

- May 6, 1999 - "PECO found a motor brake on the 2'C' RHR [Residual heat Removal] pump torus suction valve that should have been removed during a modification in **1988**. The inspectors were concerned that other safety-related MOVs included in the **1988** modification could have motor brakes installed." **(Bold faced print added.)**

Similar time delayed problems with the 2'C'; RHR occurred on January 5 & August 6-19, 1998. Also, see January 21, 1993 for root cause problems with the 2'C' RHR.

- May 10, 1999 - PECO found traces of a controlled substance "in a bathroom inside the protected area" at Peach Bottom. "The results [from a laboratory] indicated the presence of a controlled substance." (IR 50-277/99-04; 50-278/99-04). (For related incidents refer to, November, 1987; January 8, 1988 & February, 1988; and, November, 1989.)

- May 15, 1999 - "...Unit 2 load was reduced to approximately 71% for maintenance on an outboard main steam isolation valve."

"...Unit 3 load was reduced to approximately 80% power of a control rod pattern adjustment, then restored to 100% power". (IR 50-277/99-04; 50-278/99-04).

- May 25, 1999 - A Unit-3 "reactor operator received a reactor low level alarm and noted that the level was trending downward. The operator took prompt actions in accordance with plant procedures to reduce reactor power and to manually control reactor feed pumps until level had stabilized." (IR 50-277 & 278/99-05.)

- June 3, 1999 - Plant personnel identified "the 3B core spray system flow indicator was reading zero flow with the pump running. I&C [Instrumentation and Controls] technicians checked the valve lineup and found the flow transmitter had been improperly left isolated following I&C maintenance the previous day." (IR 50-277 & 278/99-05.)

- June 4, 1999 - Load at Unit-2 "was reduced to about 65% power for main condenser waterbox cleaning and various maintenance activities." Power was restored to 100% on June 6, 1999. (IR 50-277 & 278/99-05.)

- June 10, 1999 - Plant "operators experienced a temporary loss of the Unit 2 plant monitoring system (PMS) computer. They reduced power slightly to ensure average power limits were not exceeded, since the average power monitoring function of PMS was no longer available." The loss of safety parameter display system, was reported to the NRC (IR 50-277 & 278/99-05.)

- June 11, 1999 - Load was reduced at Unit-3 “to about 65% power for scram time testing and other maintenance activities.” Unit-3 achieved full power two days later. (IR 50-277 & 278/99-05.)

- June 24, 1999 - Plant personnel “responded effectively to a Unit 3 RCIC high suction pressure alarm. After the high pressure condition was corrected through the use of the alarm response card, shift personnel continued to monitor the RCIC system for abnormal parameters.” (IR 50-277 & 278/99-05.)

- June 25, 1999 - Load was reduced at Unit-3 “to about 85% power for a rod pattern adjustment and was returned to full power on June 26.” (IR 50-277 & 278/99-05.)

- June 25, 1999 - PECO’s stock price fell \$2.50 on June 17 and 18, 1999 per share “after management warned financial analysts second quarter earnings were trailing expectations.

“During a conference call Thursday discussing AmerGen’s agreement to purchase the Nine Mile Point nuclear power plant on Lake Ontario in New York State for \$163 million, PECO management said the company will have second quarter operator earnings of about 31 cents a share...” (Reuters, Jim Brumm, June 25, 1999.) (See September 11, 1997, for background data on AmerGen, and refer to May 12, 2000, for collapse of the Agreement).

- June 28, 1999 - PECO Nuclear transferred radioactive waste material to Chem Nuclear’s waste disposal facility in South Carolina “that was not properly characterized...The issue...is more than minor in that, if left uncorrected, it could become a more significant safety concern because accurate waste characterization is necessary to ensure proper near-surface disposal of radioactive waste materials. The issue affected the Public Radiation Safety cornerstone...this is considered an apparent violation.” (05000277 & 278/2000-002). (See April 25 & August 3, 2000, for a related incident).

- July to September, 1999 - Power was lost to the 351 line on three separate occasions from July to September 1999 due to storm damage. The loss of the 351 line affects a the station blackout (SBO) line and results in a loss of power to the technical support center (TSC). The loss of power to the TSC results in a loss of emergency assessment capability and, if greater, than an hour, an one hour non-emergency report to the NRC if required....In response, PECO initiated a York County Reliability Enhancement Plan to address immediate reliability issues for the 351 and 341 (a backup supply to the 351) lines...” (IR 05000277/99008, 05000278/99008.)

- July 7, 1999 - "...operators observed that the 'A' ESW pump flow rate to the emergency diesel generators (EDGs) was in the In-Service Test (IOST) alert range specified in the surveillance procedure...Engineering placed the 'A' ESW pump on an increased testing frequency and conducted an investigation into possible causes of the degraded flow." (IR 50-277/99-06; 50-278/99-06; and, 72-1027/99-06).

- July 10, 1999 - "...Unit 3 load was reduced to approximately 62% for main condenser tube leak repairs." (IR 50-277/99-06; 50-278/99-06; and, 72-1027/99-06).

- July 13, 1999 - "...Unit 2 load was reduced to approximately 67% power as a result of the trip of the 2B reactor feed pump and subsequent recirculation system runback." (IR 50-277/99-06; 50-278/99-06; and, 72-1027/99-06).

- July 15, 1999 - At Unit 3, "operators removed the fifth stage feedwater heaters from service, restoring full power capability." (50-277/99-06; 50-278/99-06; and 72-1027/99-06).

- July 27, 1999 - The NRC found two Severity Level IV violations during an inspection, but classified the infractions as" (This was the *eighth Non-Cited Violation* since June 1998. See November 7 and 30, 1998 and April 6, 1999, for other "**Non-Cited Violations.**").

"The first NCV involved the inadvertent loss of the Unit 3 Auxiliary Transformer and associated fast transfer of four 4KV emergency busses due to inadequate equipment configuration control management by your operating staff [May 21, 1999.] The second NCV involved nonconformances to Peach Bottom Fire Protection Plan which were self-identified by PECO engineering personnel during comprehensive reviews of the Fire Protection Plan." (NRC, Curtis J. Cowgill, Chief, Projects Branch 4, Division of Reactor Projects.)

- August, 1999 - "If a utility has operated a reactor outside of the safety parameters established in its operating license, i.e., "outside design basis," it is required to document it in a daily event report filed with the NRC. The more event reports filed by a nuclear reactor, the less certain that the reactor and its safety systems will operate as designed." (James Riccio, *Public Citizen*, August, 1999, *Executive Summary*.) (Refer to October 20 1997 & January 29 and March 18, 1999, for specific "outside design basis" events.)

- August 4, 1999 - The NRC reviewed senior reactor operator exams:

“A performance deficiency was identified during the performance of a JPM applicant when an applicant, while operating the refueling bridge under the direction of a fuel handling director (FHD), allowed the mast to make contact with the south fuel prep machine handrail. The mast was in the normal up position with no fuel grappled. Although the contact was minor and no damage resulted, the event indicated a lack of oversight on the part of the FHD and inattentiveness on the part of the applicant.”

“ An exam security problem was identified by PECO involving exam material previously copied by a PECO exam team member and later discovered in the same copy machine by another PECO exam team member.

“The examiner determined based on the time line developed by PECO, through interviews with those involved, and reenactment of the event, that the event was minor and the exam was not compromised.” (IR 50-277,278/99-301.)

- September 1, 1999 - “...while installing a switch for a Unit 3 refueling outage recirculation pump trip modification, a contractor technician inadvertently repositioned the 3A reactor protection system (RPS) alternate power supply switch. This resulted in a temporary loss of power to the 3As RPS, causing a half scram and ESF actuation.” (050277/99008, 05000278/99008.)

- September 23, 1999 - Unicom and PECO announced a “merger of equals with” a combined value of \$31.8 billion. “The new holding company will be the nation’s largest electric utility based on its approximately 5 million customers and it will have total revenues of \$12.4 billion.” (PECO Energy, Press release, September 23, 1999.) (See (March 24 and April 1, 2000, for related developments.)

- September 20, 1999 - “...while increasing the size of a hole in the reactor control panel to support a Unit 3 refueling outage power range instrumentation modification, a contractor technician drilled into a wire to the Unit 3B reactor manual scram circuit. This caused a blown fuse, a half scram, and the resultant ESF.” (IR 050277/99008, 05000278/99008.)

- September 30, 1999 - A turbine trip, followed by a scram, occurred at Unit 2. “Following the reactor scram...a heat up rate of 170 degrees in 45 minutes occurred in the 2A recirculation loop. The root cause of this event, as presented in the licensee event report, was in error and will be revised to reflect that the unreliable bottom head drain temperature indication prevented starting the recirculation pump.”

Deemed a Severity Level IV Violation, the NRC downgraded the event to a **Non-Cited Violation**. This was the *ninth Non-Cited Violation* since June 1998.(IR 050277/99008, 05000278/99008.)

- October 2, 1999 - An unplanned isolation of the shutdown cooling occurred. (See (April, 200 and September 24 & October 2, 2000, for similar incidents.) (IR 05000277 & 278/2000-012.) -

- October 6, 1999 - leakage of reactor coolant system water into the reactor closed cooling water system was caused by cracking in the 2”B’ recirculation pump seal cooler. (See March 15, 2000, for problems associated with increased leakage). (IR 05000277 & 278/2000-001).

- October 12, 1999 - PECO “confirmed to the NRC that the corrective actions associated with the Thermo-Lag fire barriers at Peach Bottom had been completed.” (PECO Energy Company, Form 10-K/A, 1999, p. 10.)( See September 24, 1994, October 11, 1996, May 19, 1998, and July 21, 2000, for related material).

- October 20, 1999 - A partially open main steam relief valve caused reactor cavity water to leak to the torus. (IR 050277/99008, 05000278/99008.)

- October 20, 1999 - “An engineering modification error caused the flow indication for the 3A recirculation loop to be displayed on the wrong indicator.” (IR 050277/99008, 05000278/99008.)

- October 21, 1999 - Higher than expected radiation levels were monitored in the reactor cavity after drain-down. The source was the placement of “newly discharged fuel in close proximity to the spent fuel pool gates.” (IR 05000277/1999009, 05000278/1999009 & 07201027/1999009.)

- November 2, 1999 - “Although PECO engineering was aware that the Unit-2 high-pressure coolant injection (HPCI) steam admission valve could fail to open because of thermal binding when the system was isolated for maintenance, engineering personnel failed to prevent this type of failure during maintenance...” (IR 0500277/1999009, 05000278/1999009 & 07201027/1999009.)

- November 8, 1999 - during an NRC inspection, two violations relating to Engineering Support of Facilities and Equipment were identified:

“The failure to adhere to procedural requirements in the performance of ultrasonic testing of safety-related components were identified by the inspectors as a violation of NRC requirements...The failure to include two core spray system welds in the ISI program plan was an violation...”

Both violations were downgraded and rated as **Non-Cited Violations**. This was the *tenth* **Non-Cited Violation** since June 1998.

- November 11, 1999 - A **Non-Cited Violation** was identified when the “2B CS pump room cooler failed to start during a routine quarterly surveillance test. Operations personnel determined that the room cooler fan switch was not fully turned to the ‘run’ position which prevented the fan from starting automatically when the pump was started.” PECO also filed a LER. This was the *eleventh* **Non-Cited Violation** since June 1998. (IR 05000277/1999009, 05000278/199009 & 07201027/199009.)

- November 29, 1999 - “...the inspectors discussed with plant personnel the risk significance of the November 29, 1999, Topaz inverter failure that caused the loss of the alternate shutdown valve control function at the alternate shutdown panel...Although the Unit 3 Core Damage Frequency increased slightly due to this failure, the Sentinel on-line risk assessment still remained in the ‘Green’ band.” (IR 05000277/199009, 05000278/199009 & 07201027/199009.)

- December 2, 1999 - “...during a review of an RHR logic system functional test procedure prior to a planned test, operations personnel discovered that the test procedure simultaneously caused all four pumps to be incapable of starting automatically for a period of approximately two hours” (IR 05000277/199009, 0500278/199009 & 0720/199009.)

The NRC issued a **Non-Cited Violation**. This was the *twelfth* **Non-Cited Violation** since June 1998.

- December 19, 1999 - PECO Energy filed papers before the Pennsylvania PUC to acquire Connectiv’s (formerly Delmarva Power & Light and Atlantic City Electric) share (15%) of Peach Bottom 2 & 3. The application was posted in the *Pennsylvania Bulletin* on February 12, 2000. However, “On September 30, 1999, the Company announced it has reached an agreement to purchase an additional 7.51% ownership interest in Peach Bottom from Atlantic City Electric Company and Delmarva bringing the Company’s ownership to 50%.” (PECO Energy Company, Form 10-K/A, 1999, p. 11).

(See October 19, 2001, for a related acquisition by PSE&G).

- December 27, 1999 - The NRC acceded to industry pressure to keep information about nuclear plant shutdowns and restarts “confidential” unless the licensee “waives the right.” “In the past, the NRC would supply information about most aspects of nuclear licensees’ affairs, but with the move toward market competition, it became evident that the policy was having an effect on wholesale prices...The NRC’s Mindy Landau said, ‘We have seen shutdown information directly affect the prices on the spot market for electricity. ‘ “ (The Energy Report, December 27, 1999.)

- December 29, 1999 - “...Unit 2 load was reduced to approximately 70% power to support grid conditions for the millennium roll over.” (IR 05000277/1999010, 05000278/1999010 & 07201027/1999010.)

- January 2000 - “...an Instrument and Controls (I&C) technician found that the existing 4KV emergency bus degraded grid relays could not be calibrated to a new, higher voltage setpoint in a revision to technical specifications...Engineering personnel determined that the causes were deficiencies in procedure adherence, attention to detail, and design review during the modification process and they initiated appropriate corrective actions.” (IR 0500277/199910, 05000278/1999010 & 07201027/1999010.)

- January 12, 2000 - “A contract painter inadvertently bumped an E4 emergency diesel generator coolant expansion tank drain valve, resulting in a partial drain down of the coolant expansion tank. The emergency diesel generator remained operable. The problem was similar to a recent previous event.”

The NRC “determined” this incident was a “minor violation.” (IR 05000277/1999010, 05000278/19990 & 07201027/199010.)

- January 19, 2000 - “Procedure errors with a Unit 2 high pressure coolant injection (HPCI) system tests led to a longer-than-planned period of unavailability for the HPCI system. The system manger conducted a thorough investigation of the problem and concluded that incomplete reviews during the revision process failed to identify the procedure errors.” (IR 05000277/1999010, 05000278/19990 & 07201027/199010.)

- January 21, 2000 - “...Unit 2 load was reduced to approximately 65% for condenser water box cleaning and a control rod pattern adjustment.” (IR 05000277/1999010, 05000278/1999010 & 07201027/199010.)

- January 26, 2000 - “...a Unit 3 turbine building equipment operator identified a degrading condition on the 3’B’ RPS flexible coupling.” (IR 05000277/1999010, 05000278/1999010 & 07201027/199010.)

- February 6, 2000 - "...during the transfer of a non-safety 4KV circuit breaker on the 2"b" control rod drive (CRD) pump, the breaker did not close as expected due to a mechanical failure of the anti-pumping relay." (IR 05000277 & 278/2000-001).

- February 25, 2000 - "...Unit 3 load was reduced to approximately 63% power to perform a control rod pattern adjustment, scram time and primary containment isolation system testing and replacement of the outboard main stream isolation valve DC solenoid valves". (See May 11, 2000, for a similar challenge). (IR 05000/277 & 278/2000-001).

- March 4, 2000 - "...Unit 2 load was reduced to approximately 65% power for condenser water box cleaning." (IR 05000277 & 278/2000-001).

- March 15, 2000 - "...the Unit 2 HPCI steam admission valve (MO-2-23--014) failed to open when operations personnel attempted to align the HPCI system for post-maintenance testing. PECO determined that this event was caused by thermal binding of the valve disk in its seat. A similar event had occurred in November 1999 and was documented in the NRC Inspection Report 50-277(278)/9908. Several corrective actions were initiated for the November event, included plans to upgrade the valve motor and placing the valve in a Maintenance Rule (a)(1) status in February 2000. (IR 05000277 & 278/2000-001).

- March 15, 2000 - "Leakage from the reactor coolant system water into the reactor building closed cooling water system (RBCCW) increased to "approximately 4.125 gallons per hour". (See October 6, 1999, for background information). (IR 05000277 & 278/2000-001).

- March 22, 2000 - "...Unit 2 load was reduced to less than 20% power to allow personnel to enter the drywell and repair an instrument nitrogen leak. All Unit 2 inboard main steam isolation valves DC solenoids were replaced during this load drop." (See May 11, 2000, for a similar challenge at Unit 3). (IR 05000277 & 278/2000-001).

- March 23, 2000 - "...while the HPCI system was inoperable for surveillance testing, the Unit HPCI MO-16 would not re-open after being taken to the shut position. Troubleshooting revealed that this failure was caused by high resistance associated with a contact in the open logic circuit. Maintenance personnel cleaned the contact and initiated actions to replace it.

"A similar event occurred in November 1998, when the same valve (MO-16) on Unit 2 failed to close due to an auxiliary contact problem. The contacts for this valve were recently removed for analysis during a scheduled maintenance activity on March 15, 2000. The cause of this failure was under investigation (PEP 10009425) at the time of the Unit 3 failure...

“...Engineers appropriately recognized the possible recurring nature of this issue and the potential impact on system operability for similar failures on other DC motor-operated valves in the HPCI and reactor core isolation cooling systems. The inspectors noted that auxiliary contact failures have occurred in several safety and non-safety related valve breakers over the past few years. These failure have been documented in NRC Inspection Reports 50-277(278)99006, 98001 and 97005. (IR 05000277 & 278/2000-001).

- March 24, 2000 - PECO Energy reached a comprehensive settlement with parties intervening in the proposed Unicom merger. “The Company reached agreement with advocates for residential, small businesses and large industrial customers, and representatives of marketers, environmentalists, municipalities and elected officials.” (PECO Energy, Press Release, March 24, 2000.) (See September 23, 1999 and April 1, 2000, for related developments.)

- March 25, 2000 “...Unit 2 load was reduced to approximately 66% power due to problems with the 4’C’ feedwater heater lever control. (IR 05000277 & 278/2000-001).

- April, 2000 - An unplanned isolation of the shutdown cooling occurred. (See September 24 & October 2, 2000, for similar incidents.) (IR 05000277 & 278/2000-012.)

- April 1, 2000 - “Following the merger announcement, the shares of both firms dropped, indicating the market’s clear disapproval of the merger. PECO fell 4.4 percent and Unicom fell 2.2 percent on the day of the announcement...After 60 days, the shares of both firms were still below the pre-deal prices. PECO has lost over \$1 billion in market capitalization. Unicom lost nearly \$600 million. PECO shareholders lost more than Unicom, reflecting the market’s more positive initial view of of PECO. The market seems to think that the association with Unicom may decrease PECO’s performance.” (Public Utilities Fortnightly, April 1, 2000.) (See September 23, 1999 & March 24, 2000, for related incidents.)

- April 25, 2000 - The NRC “determined that PECO Nuclear did not confirm or verify that the leak testing gauges used for preparation of a Type B shipping cask...conformed to accuracy requirements...The issue of PECO Nuclear’s ability to assure proper closure and leak testing of shipping casks is more than a minor issue since such inabilities could be a precursor to more significant events.”

The NRC deemed this infraction a **Non-Cited Violation**. This was the *thirteenth Non-Cited Violation* since June 1998.(IR 05000277 & 278/2000-002). (See June 28, 1999 & August 3, 2000, for related incidents.)

May 2, 2000 - "...a supervisor at the York County '911' center inadvertently activated the York County portion of the alert and notification sirens". (IR 05000277 & 278/2000-002).

- May 7, 2000 - "Unit 2 load was reduced to approximately 90% power after the 2 'A' circulating pump was removed from service due to high motor upper guide temperatures." (IR 05000277 & 278/2000-002).

- May 10, 2000 - "Unit 3 load was reduced to approximately 35% power after the 3 'B' recirculation pump was removed from service due to low motor oil level". (IR 05000277 & 278/2000-02). (See May 11, 2000, for related incidents).

- May 11, 2000 - "Unit 2 load was reduced to approximately 98% due to unexpected speed changes on the 2 'B' recirculation pump while raising or lowering pump speed." (IR 05000277 & 278/2000-002). (See May 15 and 19, 2000, for related incidents.)

- May 11, 2000 - "Unit 3 power was further reduced to approximately 19% on to allow entry into the drywell to support adding oil to the 3'B' recirculation pump motor, repair of an instrument nitrogen leak, and replacement of all inboard main steam isolation valves DC solenoids". (IR 05000277 & 278/2000-002). (See November 27, 1998, February 25 and May 11, 200, for related problems. Also, refer to June 1, 1998 and March 22, 2000, for similar challenges at Unit 2).

- May 12, 2000 - "Niagara Mohawk Power Corp. said on Friday that agreements to sell its nuclear assets to AmerGen Energy Co. have been mutually ended by the two companies." (See June 25, 1999, for background information.)

- May 13, 2000 - The National Weather Service reported that a tornado touched down in the Peach Bottom-area.

- May 15, 2000 - "Unit 2 load was reduced to approximately 86% to isolate the 'B' feedwater heater string due to a leak in the 'B2' feedwater heater." (IR 05000277 & 278/2000-002). (See May 11 and 19, 2000, for related incidents).

- May 19, 2000 - "Unit 2 was placed in cold shutdown (Mode 4) to facilitate repairs of the 'B2' feedwater heater tube leaks." (IR 05000277 & 278/2000-002). (See May 11 and 15, 2000, for related incidents).

- May 22, 2000 - At Unit 2, "a steam leak was discovered in the piping from the 'F' moisture separator to the 'B' low pressure turbine. The turbine was removed from service on May 22 and the leak was repaired. Unit 2 returned to 100% power on May 23." (IR 05000277 & 278/2000-006 & 07201027/2000-

006).

- May 27, 2000 - The United States Department of Justice, "filed an action claiming breach of contract against the Company in the United States Middle District of Louisiana arising out of the Company's termination of the contract to purchase Cajun's 30% interest in the River Bend nuclear power plant. The action seeks the full purchase price of the 30% interest in the River Bend nuclear power plant, \$50 million, plus interest and consequential damages. While the Company cannot predict the outcome of this matter, the Company believes that it validly exercised its right of termination and did not breach the contract." (PECO Energy Company 1999 Annual Report, p. 46). (See June 5, 1997 and May 27, 1998, for background information).

-May 28, 2000 - "The most recent packing gland follower cracking event occurred on a similar Unit 3 root isolation valve on May 28 ,2000 and resulted in the leakage of contaminated reactor coolant system water outside of the primary coolant. Leakage of contaminated reactor coolant system water outside of the primary containment is a significant condition adverse to quality." (See August 7, 2000, for more problems with packing gland follower cracking." (IR 05000277 & 278/2000-008)

### **BLACKOUTS & HIGH PRICES: SUMMER 2000**

- April 11, 2000 - The North American Reliability's Council's (NERC) General Counsel, David Cook, testified before a Senate Committee, and "repeated findings of a recent NERC survey that several control area operators in the Eastern Interconnection were 'leaning' on the interconnection during nine peak hours (i.e., selling energy that they didn't have). (*Public Utilities Fortnightly*, May 15, 2000, p. 16)

- May 9, 2000 - "The Pennsylvania-New Jersey-Maryland (PJM) power pool implemented a five percent voltage reduction on May 9 to ease pressure on the distribution system.

"The action was taken to avoid emergency rolling blackouts where power is interrupted for short durations - typically 20 to 30 minutes." (**Update**, The Department of Environmental Protection, May 12, 2000, p. 2).

- May 16, 2000 - The electric utility industry predicted a 17% difference between supply and demand in a service area stretching from Virginia Beach to Detroit.

"The all time maximum PJM demand of 51,700 MWQ occurred on July 6, 1999." (PECO Energy Company, Form 10 K/A, p.7).

June 28, 2000 - "This summer, (residential customers) probably have fewer choices than they did a few months ago, and the choices they do have are more expensive than they were...Combine strong economic growth with hot weather and the bad luck of having things like a number of power plants being shut down at the same time because of outages, and you certainly have

problems.” (Sony Popowsky, Consumer Advocate, *Investor’s Business Daily*).

In June, San Francisco suffered a blackout, and California has mandated usage restrictions for commercial, industrial, and residential customers.

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- June 9, 2000 - The NRC “approved transferring the operating license for the Oyster Creek nuclear station in New Jersey to AmerGen Energy Co.” The New Jersey utilities board, which will meet on June 22, still needs to approve the transfer. (“Reuters”, June 9, 2000, 3:12 pm.) (See September 11, 1997, for background information. Refer to August 16, 2000, for follow-up problems).

- July 20, 2000 - “U.S. Energy Secretary Bill Richardson on Thursday said the government has agreed to allow PECO Energy Co. to defer up to \$80 million in nuclear waste fee payments for its Peach Bottom plant in Pennsylvania, to compensate for the Energy Department’s failure to store its waste...The deal allows PECO to reduce the projected charges passed into the Nuclear Waste Fund to reflect costs reasonably incurred by the company due to the department’s delay.” Press Release, U.S. Department of Energy. July 20, 2000.)

- July 21, 2000 - “During the inspection, [April 14-18, 2000] the NRC identified two findings associated with the adequacy of post-fire safe shut down equipment circuit analyses at the station. Both of these issues were determined to be apparent violations...It is our understanding that you do not consider either of these two issues to be violations of 10 CFR 50 or your operating license. Additionally, we recognize that other commercial nuclear power plant operators, represented by the Nuclear Energy Institute (NEI), have adopted a similar position regarding these issues. As such, in accordance with our current enforcement policy...the NRC will **defer any further enforcement action** relative to these issues until the staff evaluates NEI’s proposed resolution methodology.” Wayne D. Lanning, NRC, Director, Division of Reactor Safety. (See May 19, 1998 and October 12, 1999, for related events.)

- August 3, 2000 - PECO was assessed a “White” level Violation for its “failure to properly classify radioactive waste for shallow land burial...Specifically, the shipment was identified as Class A waste containing 99 curies when it should have been classified as Class B waste containing 407 curies.” (NRC, Hubert J. Miller, Regional Administrator). (Refer to June 28, 1999, for background information. See April 25, 2000, for a related incident.)

- August 7, 2000 - Unit 3 “automatically shutdown from 100% power when a one inch instrumentation rack root valve packing gland follower failed and caused a false reactor low level input into the RPS [reactor protection system]. The failure occurred when the packing gland follower broke into two pieces allowing package leakage of contaminated reactor coolant system water from the instrumentation piping. The leak was immediately isolated by actuation of the excess flow check valve in the instrumentation piping line. Unit 3 also experienced Groups II and III primary containment isolation valve closures

due to the false reactor low level signal.”

The NRC issued a **Non-Cited Violation**. This was the *fourteenth Non-Cited Violation* since June 1998.

The NRC also criticized PECO’s corrective action program: “Two previous packing gland follower cracking incidents had occurred on similar valves at the facility during the past eighteen months. The most recent packing gland follower cracking event occurred on a similar Unit 3 root isolation valve on May 28, 2000 and resulted in the leakage of contaminated reactor coolant system water outside of the primary coolant. Leakage of contaminated reactor coolant system water outside of the primary containment is a significant condition adverse to quality. The identification of this significant condition adverse to quality was not adequately documented in PECO’s corrective action system, and as a result, the cause of the condition was not determined, corrective actuation was not taken to prevent repetition, and generic concerns with potential packing gland follower cracking on other valves were not addressed.” (IR 05000277 & 278/2000-008)

The NRC issued a **Severity Level IV violation** “related to the identification and resolution of problems on leakage of contaminated reactor coolant system water caused by cracking of instrument root valve packing gland followers.”

- August 14, 2000 - AmerGen reported a valve failure [reactor building isolation valves] at Oyster Creek that forced the plant to shutdown at 82% power. “It’s too premature to guess at a date the unit may return. We’re still evaluating the problem and will likely replace the valves that failed, “ AmerGen Spokeswoman, Debra Piana. (“Reuters”, August 16, 2000.) (Please refer to September 11, 1997 and June 9, 2000 for additional information.)

- August 22, 2000 - The NRC issued a **Non-Cited violation** related to “inservice tests for the standby liquid control pumps. A two-minute wait was not mandated, as required in the applicable Code, by the test procedure before pump flow and pressure measurements were recorded. Because of the very low safety significance, the violation was non-cited.” This was the *fifteenth Non-Cited Violation* since June 1998. (NRC, Wayne D. Lanning, Director, Division of Reactor Safety, IR 05000277 & 278/-005.)

- August 23, 2000 - “Operators reduced power [at Unit 2] to approximately 68% to remove the ‘B’ feedwater heater string from service due to suspected leaks and on August 24 returned the unit to 83% power.” (See September 7 & 13, 2000, for related incidents.) (IR 05000277 & 278/2000-010.)

- September 7, 2000 - "Operators reduced power [at Unit 2] to approximately 16% in response to pressure perturbations in the 'B' feedwater heater string and on September 8 returned the unit to 75% power." (See August 23 & September 13, 2000, for related incidents.) (IR 05000277 & 278/2000-010.)

- September 13, 2000 - Operators reduced power to approximately 16% at [Unit 2] in response to pressure perturbations in the 'B' feedwater heater string and on September 8 returned the unit to 75% power." (See August 23 & September 7, 2000, for related incidents). (IR 05000277 & 278/2000-010.)

- September 15, 2000 - "...with Unit-2 at approximately 16% power and 24% flow, operators performed a manual scram to prevent operation in the restricted zone of the power flow map after an unplanned trip of the 2B reactor recirculation pump." (IR 05000277 & 278/2000-012.)

- September 16, 2000 - Three workers failed to follow oral and written instructions, and "either worked in proximity of , passed through, or transported radiation shielding materials through elevated radiation fields (up to 13.9 R/hr) in the drywell. As a result, one of the workers did not contact radiation protection personnel upon alarm of the dosimeter, also as specified in written and oral radiation protection instructions.

"This issue was considered to be of very low safety significance...a **Non-cited violation** " was issued. This was the *sixteenth Non-Cited Violation* since June 1998. (IR 05000277 & 278/2000-010.)

- August 31, 2000 - Exelon issued an LER after determining that three of four EDGs "were inoperable during the summer of 1999, based on their inability to mitigate a postulated loss-of-coolant-accident plus loss-of-off-site-power design basis accident for a maximum of approximately 25 hours. The licensee attributed the cause of the event to be an original design deficiency on the EDGs, which allowed cross-flows between the jacket water coolers and the intake-air coolers." (IR 50-277/01-06, 50-278/01-06.).

- September 24, 2000 - During the 2R13 refueling outage, a "spurious" unplanned isolation of the shutdown cooling occurred. (See October 2, 2000, for similar incidents.) (IR 05000277 & 278/2000-012.)

- September 28, 2000 - "...operations personnel determined, during in-service testing, that ESW [Emergency service water] check valve 2-33-514 failed [sic] open. The check valve is designed to prevent reverse flow from the safety-related ESW into the Unit 2 non-safety related water service system. Operators declared both ESW systems inoperable, because ESW flow to the EDGs and emergency core cooling system room coolers and motor oil coolers could be inadequate..."

“The inspectors and operations personnel noted that, during two periods in which the ESW system was declared inoperable, operators did not address the operability status of the EDGs or associated Technical Specifications action statements and/or applicable limiting conditions for operation of Unit 2 which was in Mode 5 (refueling) at the time...”

”The inspectors determined that this event required further evaluation in the significance determination process.” (See October 1 through November 18, 2000, for an identical problem). (IR 05000277 & 278/2000-010.)

- September 30, 2000 - Operators reduced power to approximately 18% in response to a low oil level in the 3B recirculation pump motor. Unit 3 was at approximately 35% power.” (IR 05000277 & 278/2000-010.)

- October 1 through November 18, 2000 - “Emergency service water (ESW) system check valve 2-33-514 failed [sic] open, allowing safety-related ESW flow to be partially diverted from emergency diesel generators(EDGs) and emergency core cooling system room coolers. The inspectors and the licensee identified that this risk important component had not been included in a preventive maintenance program.

“This issue caused the ESW system and the EDGs to be degraded for a period of up two years. This finding was of very low safety significance because, although the ESW flow rate to the EDGs was below the design basis minimum value engineering personnel determined that the EDGs would have remained available during accident conditions.” A **Non-Cited Violation was issued.** This was the *seventeenth* **Non-Cited Violation** since June 1998. (See September 28, 2000, for a related incident.) (IR 05000277 & 278/2000-012.)

- October 2, 2000 - Three unplanned isolations of the shutdown cooling (SDC) occurred. “Engineering personnel stated that these events were caused, in part, by an ILRT (Integrated Leak Rate Test) procedure that did not fully account for the reduced operating margin to the high pressure isolation setpoint...”

“At the time of the isolations during the ILRT, SDC was the only operable decay heat removal system...”

*Continued on the following page...*

“The inspectors identified that there were previous occurrences of SDC isolations on Unit 2 that were not fully investigated. For example, on October 2, 1999, a similar SDC isolations occurred, but no cause was identified. The pressure switches were found to be in calibration. No PEP corrective action plan document was initiated. Further, in April 2000, engineering personnel initiated an action item to troubleshoot isolations, but no action had been taken prior to the outage. The inspectors brought this issue to the attention of engineering management. Engineers also noted that there were two other not-fully-understood SDC isolations on Unit 2 since 1994. The inspectors concluded that engineering personnel had missed opportunities to investigate previous SDC isolations and this constituted a corrective action performance issue.”

The inspectors **did not identify a violation of NRC requirements.** (See September 24, 2000, for related incident.) (IR 05000277 & 278/2000-012.)

- October 4, 2000 - Unit-2 was taken critical.
- October 4, 2000 - Unit-2 “operators halted the reactor startup following the discovery of a missed post-maintenance test on a control rod.” (IR 05000277 & 278/2000-012.)
- October 17, 2000 - Unit-2 “operators reduced power to approximately 65% to repair a condenser tube leak. The unit was restored to 100% on October 18.” (IR 05000277 & 278/2000-012.)
- October 22, 2000 - “...the failure of the Unit-2 ‘H’ torus/drywell vacuum breaker to fully close during surveillance testing rendered primary containment inoperable...Unit load was reduced to 16% due to an inoperable torus/drywell vacuum breaker...Because of the very low safety significance of this item and because the licensee has included it in their corrective action program (PEP I0011883), this procedure violation is being treated as a **Non-Cited Violation.**” This was the *eighteenth Non-Cited Violation* since June 1998 (IR 05000277 & 278/2000-012.)
- October 23, 2000 - Unit-2 was shut down to repair the torus/drywell vacuum breaker. The reactor was taken critical on October 24 and unit load was 100% on October 26.” (IR 05000277 & 278/2000-012.)
- November 13, 2000 - “Operators reduced load to 79% [at Unit-2] to repair the 2C circulating water pump traveling screen. The unit was restored to 10% power on the same day.” (IR 05000277 & 278/2000-012.)
- December 17, 2000 - An LER was issued “when a lightning strike caused the failure of a communications circuit board to a main off gas stack radiation monitor which resulted in a spurious invalid signal causing the isolation.”

Unit 3 was at approximately 18% power when the lightning strike caused the isolation. (IR 05000277&278/2001-002).

- March 23, 2001 - Examinations for reactor operators and senior reactor operators held from February 5-12, 2001, "indicated that a relatively high percentage of the applicants were not well prepared for the exam." (Richard J. Conte, NRC, Chief, Operations Safety Branch, Division of Reactor Safety.)

- May 20, 2001- Corbin A. McNeill's base salary after the merger increased from \$659,857 to \$855,830 and his bonus was increased from \$1 million to \$1,081, 4572. In addition, McNeill's restricted stock increased from \$942,188 to \$2.8 million. (See June 13 and September 28, October 24 & December 21, 2001, for information on 900 job cuts, and refer to January 29, 2002, for further job cuts. Also, reference February 26, 2002, for information on McNeill's "retirement package.")

- May 29, 2001 - At Unit 3, "... the fifth stage feed water heaters were removed from service for end-of-cycle coast down. Unit 3 ended the inspection period at approximately 98 percent power with the four stage feedwater heaters removed from service." (IR 50-277/01-05, 50-278/01-05 & 07201027/01-05).

- June 13, 2001 - Exelon Nuclear "announced its intent today to eliminate 292 Local 15 Union positions, including 138 layoffs in Exelon Nuclear and 154 at Commonwealth Edison." (Exelon, New Release, June 13, 2001.) (See September 3, 1998, for further Exelon "downsizing"). (Refer to May 20, 2001, for Corbin A. McNeill's pay raise.)

- June 22, 2001- After widespread public criticism, AmerGen "notified the Nuclear Regulatory Commission that it intends to delay submitting its application seeking approval for a standardized emergency plan for Three Mile Island, Peach Bottom and Limerick." (Exelon Nuclear, Press Release, June 22, 2001.) (See August 15, 2001 for more information & November 7, 2001, for a related development)

- June 30, 2001 - At Unit 2, "...operators commenced an unplanned power reduction to approximately 63 percent to allow repair of an electro-hydraulic control system leak at a servo on the No. 2 main turbine control valve. Later that same day, operators returned the unit to 100 percent power." (IR 50-277/01-05, 50-278/01-05 & 07201027/01-05).

- June 30, 2001 - "...Exelon Nuclear notified the Nuclear Regulatory Commission (NRC) that it intended to file for renewal of the operating licenses for Peach Bottom Units 2 and 3...

"If approved, Unit' 2's license would be extended from 2013 to 2033 and Unit 3's from 2014 to 2034...

“The Nuclear Regulatory Commission is expected to take two years to thoroughly review the license renewal application before determining whether to grant the license extensions...”

“The total cost of obtaining the renewed licenses for Peach Bottom will be about \$18 million, including the NRC review, or about \$8 per kilowatt hour...Exelon Nuclear also has notified the NRC that it intends to file for license renewal[s] for its Dresden and Quad Cities Stations in Illinois.” (Exelon Nuclear, Press Release, July 2, 2001.)

- August, 15, 2001- The NRC’s Office of Investigation documented criminal behavior by two of Exelon’s Emergency Preparedness personnel. The NRC found that the “technicians fabricated siren testing maintenance records, performed deficient siren tests on the off site EP response sirens and intentionally installed jumper wires in the siren boxes disabling important system functions.” (Wayne D. Lanning, NRC, Director of Reactor Safety.) (Refer to August 22, 2001, for background information, and see October 23, 2001, for penalty assessment.) (See June 22 & November 7, 2001, for related developments.) (See October 5-9, 2001, for a related problem at TMI.)

- August 22, 2001 - The NRC determined that a white “finding” (Violation) was warranted for the following infractions relating to the plants Public Address (PA) system and evacuation alarm/siren (EA) system:

1. From 1992 to December 19, 2000, approximately 47% of the PA system’s speakers were either inaudible or degraded to the point that personnel were not able to clearly hear instructions.

2. From January 19, 2001 to February 13, 2001, and again from March 20, 2001 to April 17, 2001, the plant PA system was operated only on the backup power breaker, which would have tripped after about 49 seconds of evacuation alarm actuation on the first sequence. (The primary breaker had tripped following the monthly test the beginning of each period.)

3. On February 13 and April 17, 2001, the plant PA/EA system would not properly function in that both the primary and the backup breakers were tripped for periods of 4.5 hours and 1.5 hours resulting in no system capability to provide instruction or sound the evacuation alarm. (Hubert J. Miller, NRC. Regional Administrator.) (See August, 15, 2001, for a related development.)

- August 20, 2001 - “...the inspectors observed a health physics technician that was inattentive to his duties when he was assigned to restrict access to a posted high radiation area on the Unit 3 turbine floor...that applies to high radiation areas with dose rates in excess of 100 millirem per hour but less than 1000 millirem per hour at 30 centimeters from the source...” (IR 50-277/01-09, 50-278/01-09).

This was the *nineteenth* **Non-Cited Violation** since June 1998.

- September 6, 2001 - A Non-Cited Violation “of very low safety significance” was recorded for, “The failure to test the Units 2 and 3 HPCI [high pressure coolant injection] torus suction check valves for seat leakage in the reverse flow direction was more than minor because it had a credible impact on safety. Significant leakage in the reverse flow direction could prevent HPCI from performing its function when HPCI is aligned to pump water from the torus. The failure to leak test these valves affected the Mitigating System cornerstone since HPCI performs an accident mitigation function.” (IR 50-277/01-06, 50-278/01-06).

This was the *twentieth* **Non-Cited Violation** since June 1998.

- September 8, 2001- Unit 2 was taken critical and “operated at approximately 100% power for the remainder of the inspection period except for scheduled power changes to support rod pattern adjustments.” (IR 50-277/01-09, 50-278/01-09).

- September 14, 2001- Unit 3 “began this inspection period at approximately 81 percent power, in end-of-cycle coastdown, with the fourth and fifth stage feedwater heaters removed from service on. On September 14, 2001, Unit 3 was manually scrammed, in preparation for the 3R13 refueling outage. Unit 3 ended the inspection shutdown in Mode 5 (Refueling).” (IR 50-277/01-09, 50-278/01-09).

- September 17, 2001- TMI-Alert filed a Petition for rule making with the NRC requiring the Agency to mandate armed security guards at the entrance to all nuclear power plants. A final decision is expected in November 1, 2002. The Nuclear Energy Institute, Exelon’s “voice in Washington, “recommended” that the Petition be “denied.”

- September 28, 2001 - With third quarter profit projections down from \$1.35 to \$1.80 a share, Exelon announced the elimination of 450 jobs. (See June 13, 2001, for earlier job losses.)

Exelon’s stock dropped to \$44.50 on September 27, 2001. (See May 20, 2001, for Corbin A. McNeill’s pay raise, and October 24, December 21, 2001, for related downgrades.)

- October 1, 2001 - The NRC reported on Exelon's Emergency Preparedness program:

Although you believe the current EP program remains ready to effectively protect public health and safety, you stated it did not meet Exelon's vision of an industry leading program. Your presentation included changes and improvements to: (1) EP organization/staffing; (2) EP equipment reliability; (3) EP program processes; and (4) the corrective action process. (Richard J. Conte, Chief, NRC, Operations Safety Branch, Division of Reactor safety, October 18, 2001. (See June 22 August 15, 2001 for background information & November 7, 2001, for a related development)

- October 5-9, 2001 - At TMI, "Licensee sirens in Lancaster County were inoperable October 5 through October 9, 2001, due to a radio transmitter being deenergized at the county facility. The transmitter is part of the siren actuation system. This issue is unresolved pending further investigation into the lines of ownership and maintenance of the actuation system" (IR 50-289/01-07.) (See August 15, 2001, for a related problem at Peach Bottom.)

- October 6, 2001 - The Federal Energy Regulatory Commission (FERC) filed a "show cause" order relating to PECO Power Team's purchase during a power auction that may have benefited from "informational advantage" from Peco. ("Philadelphia Inquirer", October 6, 2001.) On December 19, 2001, according to Exelon, the FERC "terminated its investigation into alleged wrongdoing..." (Exelon Corporation, Press Release, December 19, 2001.)

- October 6, 2001 - After the September 11, 2001 terrorist attacks on the World Trade Center, the Pentagon and a downed airliner in Somerset County, Pennsylvania, the NRC has issued a "Security Advisory", and required 13 "prompt actions which are "safeguarded" and "classified." (See October 17, 2001 & November 2, 2001, for related incidents).

- October 8, 2001- The NRC issued another Non-Cited Violation, and concluded that Exelon's "Troubleshooting, Rework, and Testis Process" (TRT) "would not adequately control Unit 3 reactor vessel water levels." (IR 50-277/01-09, 50-278/01-09)

This was the *twenty-first* **Non-Cited Violation** since June 1998.

- October 8, 2001- Unit 3 was taken critical and "operated at approximately 100% power for the remainder of the inspection period except for scheduled power changes to support rod pattern adjustments." (IR 50-277/01-09, 50-278/01-09).

- October 12, 2001- “....during the Unit 3 startup from a refueling outage, when the jet pumps had been cleaned, core flow exceeded 100% (at 106.3%) for a period of ninety minutes before operations personnel initiated actions to reduce core flow to within 100%.” (IR 50-277/01-07, 50-278/01-07.)

This was the *twenty-second Non-Cited Violation* since June 1998.

- October 17, 2001 - Due to a “credible threat” against Three Mile Island, the Harrisburg and Lancaster airports were closed for four hours, air travel was restricted in a 20-mile radius, a fighter jets were scrambled around TMI. (See October 6, 2001, & November 2, 2001, for a related events.)

Through the Freedom of Information Act, the York Daily Record (December 21, 2003) found a “twofold” challenge when a threat against Three Mile Island caused the Harrisburg and Lancaster airports to close for four hours: Air travel was restricted in a 20-mile radius and fighter jets were scrambled around TMI.

Officials struggled with whom to call first, next and last. Officials struggled with notifying state and local officials. And officials struggled with when and whether to notify the public...One NRC official had difficulty reaching senior management at TMI...No one contacted enforcement officials in York County about the threat...[PEMA] officials had to push plant officials to staff their emergency operations facility

[in Susquehanna Township which was later relocated to Coatesville].

- October 19, 2001 - PSE&G acquired Atlantic City and Electric Company’s stake in Peach Bottom. (See December 1, 1999, for a related acquisition by Connectiv).

- October 23, 2001 - On August, 15, 2001, the NRC’s Office of Investigation documented criminal behavior by two of Exelon’s Emergency Preparedness personnel.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$55,000 is considered for Severity Level III violation or problem. Because the Severity Level problem was deliberate, the NRC considered whether credit was warranted for *Identification* and *Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. In this case, the NRC decided that credit for Identification is warranted because you identified the misconduct and informed the NRC.” (Hubert Miller, NRC, Regional Administrator, October 23, 2001).

This was the *twenty-third Non-Cited Violation* since June 1998. Exelon's **total cost avoidance**, i.e., “**credit**” for 23 Non-Cited Violations = **\$1,155,000**.

- October 23, 2001 - At Unit 2, “an automatic reactor shutdown occurred due to a generator lockout and main turbine trip. Following troubleshooting and repairs, the unit was restarted on October 27 and reached 100% power on October 30. (IR 50-277/01-09, 50-278/01-09).

- October 24, 2001 - Exelon Corporation’s stock was downgraded from “Buy” to “Mkt Perform” by Banc of America and from “Strong Buy” to “Hold” by UBS Warbug. (See May 20, 2001, for Corbin A. McNeill’s pay raise, and September 28 and December 21, 2001, for related downgrades.)

- October 30, 2001 - “...the E-2 emergency diesel generator (EDG) tripped on low jacket coolant discharge presurre during routine testing of the EDG...Although Exelon was unable to detemine who closed this valve or exactly when it was closed, they did determine that the valve was closed somewhere in the period between October 12, 2001 and Ocotber 30, 2001...The EDG was successfully tested and returned to service on October 31, 2001” (IR 50-277/01-10, 50-278/01-10.)

This was the *twenty-fourth Non-Cited Violation* since June 1998. Exelon's **total cost avoidance**, i.e., “**credit**” for 24 Non-Cited Violations = **\$1,205,000**.

- November 2, 2001 - Governor Mark Schweiker reversed an earlier decision, and ordered the National Guard to Pennsylvania’s nuclear power plants. The Commonwealth joins over a dozen states with National Guard and/or Coast Guard detachments depolyed to protect nuclear facilities against terrorist attacks. (See October 6 & 17, 2001, for related incidents).

- November 7, 2001 - Exelon met with the NRC to discuss the consolidation of Emergency Plans for TMI, Peach Bottom and Limerick. Exelon requested the plans be approved and implemented by January 2, 2002. The following personnel (17), including a "Security Coordinator" would be affected:

**\* LGS and PB Emergency Plan Positions Affected**

**1 Communicator**

**2 Dedicated Maintenance Technicians**

**1 Dose Assessor**

**2 Dedicated Off-Site Survey member**

**\* TMI Emergency Plan Positions Affected**

**4 Technicians**

**1 On-Site OSC Coordinator**

**1 Dose Assessor**

**1 Off-Site Field Team Member**

**1 Communicator**

**1 Security Coordinator**

**2 Auxiliary Operators.**

(Presentation by: William Jefferson, Director, Generation Support, Exelon Nuclear, MidAtlantic Regional Operating Group, May 16, 2001.) (See June 22, August 15, & October 1 2001, for related developments.)

- November 8, 2001 - At Unit 3, "...operators commenced a scheduled power reduction to approximately 19% because a primary containment isolation valve in the residual heat removal system in the drywell failed to close when it was tested."(IR 50-277/01-10, 50-278/01-10.)

-November 28, 2001 -Exelon Power Team stated that the collapse of Enron will cost the Company “less than \$10 million. The current direct exposure (i.e., for current energy sales from Exelon to Enron) is less than \$20 million. (Exelon Corporation, Press Release, November 28, 2001.)(See October 8, 1997, for a related development.)

Three days later, on December 1, 2001, PPL stated that the collapse of Enron may cost the Company \$40 million for energy already purchased. Enron also owns 45% of power plant in New England operated by PPL. (*Philadelphia Inquirer*, Business, December 1, 2001.)

- November 30, 2001 - At Unit 2, “...operators commenced a scheduled power reduction to approximately 19% to repair an instrument nitrogen leak in the drywell. Following repairs, the unit power was increased and reached 100% on December 2, 2001.”  
(IR 50-277/01-10, 50-278/01-10.)

- December 5, 2001 - *Business Day* of Johannesburg South Africa reported Exelon was negotiating to buy 40 Pebble Bed Modular Reactors from Eskom. The order, estimated to be as much as \$6 billion, assumes delivery of the reactors to the United States by 2007. (See December 10, 2001, for related development.)

Refer to April 17, 2002, for information relating to Exelon’s decision to pull-out of the project.

- December 10, 2001 - Unreco, a uranium supplier, is seeking regulatory approval to build the first new enrichment facility in the US in half a century. The project, estimated to cost \$10, is a joint venture of Exelon and Duke Power. (*Financial Times*, December 10, 2001) (See December 5, 2001, for a related development.)

- December 21, 2001- Exelon Corporation’s stock was downgraded from “Accumulate” to “Hold” by Jeffries & Co., and Lehman Brothers stated, “We believe an economic recovery is key to the Exelon story, which is highly leveraged to power prices...” (Reuters, December 21, 2001.) (See May 20, 2001, for Corbin A. McNeill’s pay raise, and September 28 and October 24, 2001, for related downgrades. Also, refer to January 29, 2002, for further job cuts.)

- January 9, 2002 - A well-armed, disgruntled former employee at the San Onofre nuclear power plant in San Clemente was arrested for making threats against the plant.

- January 11, 2002 - Siren testing at TMI encountered numerous problems: all sirens failed in York County and one siren failed in Lancaster County. AmerGen attributed to computer malfunctions. (August, 15, 2001, and October 5-9, 2001.)