Incident Chronology at Susquehanna Steam Electric Station in Berwick: 1982- 2014

CHRONOLOGY of PROBLEMS at the
SUSQUEHANNA STEAM ELECTRIC STATION

This chronology does not include the cost to the rate payer to build Susquehanna-1 and -2. PP&L asked the Public Utility Commission (PUC) for $315 million to recover the cost of building Unit-1. The PUC granted $203 million on August 22, 1983, or a 16% increase to the customer. The company asked for $330 million for Unit-2 but was allowed $121 million in April, 1985; an 8% increase to rate payers. In addition, PP&L consumers have "contributed" approximately $4.6 million annually (since 1985) to the decommissioning fund.
(Also, refer to May 15 and August 13, 1998, for information on "stranded costs" passed on to "hostage" PP&L rate payers.)
Moreover, in the Winter 1999/2000, PPL unilaterally devaluated the combined PURTA and Real Estate tax assessments for the SSES. Prior to the Negotiated Settlement, the nuclear power generating stations were assessed by PP&L at approximately $1 billion. PPL is now claiming that the the SSES is only worth $74 million or the same amount as the valuation of the Columbia Hospital. If PPL prevails, the Berwick School District and Luzerne County will experience revenue shock. PPL is not paying or escrowing any moneys they owe to Luzerne County and the Berwick School District.
(See April 23, 2001 and July 13, 2003, for related development).
i The Susquehanna Steam Electric Station is owned by PP&L (90%) and the Allegheny Electric Cooperative (10%). The Allegheny Electric Cooperative (AEC) is responsible for 10% of the cost of decommissioning. PP&L's consultant, TLG, estimated PP&L's decommissioning share to be $724 million. Therefore, the AEC is responsible for the remaining 10%, or $79 million, of the $804 million projected funding "target" for nuclear decommissioning.
At the Susquehanna Steam Electric Station, projected costs for decommissioning have increased by 553% since 1981-1993. In 1981, PP&L engineer Alvin Weinstein predicted that PP&L's share to decommission SSES would fall between $135 and $191 million. By 1985, the cost estimate had climbed to $285 million, and by 1991 the cost in 1988 dollars for the "radioactive portion" of decommissioning was $350 million. The Company then contracted out for a site-specific study which projected that the cost of immediate decommissioning [DECON] would be $725 million in 1993 dollars. The 1994 cost estimate remained steady at $724 million, but the market value of securities held and accrued in income in the trust funds declined, and thus the estimate reflected another increase in decommissioning costs.

PPL's share to decommission the SSES is projected to be $936 million in 2002 dollars (2002, Annual Report).
ii - September 22, 1982 - An emergency was declared at the plant. (UPI, September 22, 1982.)

August 6, 1982 - UPI reported PP&L announced it was investigating nuclear plant allegations; however, the utility initially denied the complaints on December 29, 1981. (UPI, December 29, 1981.)

January 21, 1983 - UPI reported, "Another spill at the Susquehanna nuclear plant."

March 29, 1983 - UPI reported, "Nuclear plant workers evacuated, Berwick, Pa."

June 9, 1983 - Unit-1 went commercial. The plant was at 100% power in February, and has been operating at full-power since May 23, 1983. (AP, June 9, 1983).

June 14, 1983 - Susquehanna was forced to shut down. The incident was termed "minor." (UPI, June 14, 1983.) However, the Company later admitted "the reactor shut down when an usually high degree of radiation was detected..." (AP, June 25, 1983).

June 25, 1983 - Susquehanna automatically to shut down due to an electrical problem inside a transformer.
"Eight hours after the shut down, workers were still trying to determine the nature of the malfunction, spokesman Ira Kaplan said. He said the plant would not be restarted until the transformer is repaired." (UPI, June 14, 1983.)
(Please reference the following dates for a list of chronic electrical problems at the SSES: "1986"; September, 1988; February 6, 1990; July 23, 1997; June 8-16, 1999; April 8, 2004; and, April 12, 2005.)
- The SSES provides 20% of the commercial power PP&L supplies to its customers. (See September 5, 1989, for new figures.)- April 26, 1984 - "Nuclear plant water discharges studied" (UPI, April 26, 1984.)

July 26, 1984 - An "unusual event" was declared. (UPI, July 26, 1984.)

August 9, 1983 - The New Jersey Public Utilities Board

refused to pass on excess costs to rate payers as a result Atlantic City Electric's purchase of 125 megawatts (almost 6% of the SSES output) from PP&L. ACE has refused to to take any power from the Susquehanna Steam Electric Station. The power agreement was valued at $30 million.

1985 - 1994 - PP&L cut 1,600 jobs over this period. (Please refer to November 14, 1995 and June 19, 2002, for more terminations.)

1986 - PP&L reported safety violations to the NRC "after it discovered that a number of cable splices and electrical terminals did not meet new standards passed in 1985. We did have some of those terminal blocks and splices in service beyond the date were were supposed to be in compliance" according to PP&L spokesman, Herb Woodeshick. (UPI, September, 1988. (See September, 1988, for information on a $50,000 fine.) (Please reference the following dates for a list of chronic electrical problems at the SSES: June 25, 1983; September, 1988; February 6, 1990; July 23, 1997; June 8-16, 1999; April 8, 2004; and April 12, 2 0 0 5) .

September 23, 1987 - A "low-level emergency " was declared when an "800-pound steel plug fell out of steam line during a test." (AP.)

October 1, 1987 - Prior to the contamination of four PPL employees (See below), "a relief valve opened in Unit 1 pump room, allowing about 1,300 gallons of contaminated water to spill onto the floor." Company spokesman Ira Kaplan quipped, "We're no precisely sure what happened. The valve opened and when it did the water spilled out on the floor" (UPI, October 1, 1987.) - October 1, 1987 - "Four workers contaminated, Berwick, Pa." (UPI, October 1, 1987.) After the workers were decontaminated, PPL spokesman Ira Kaplan observed, "It is not unusual to have people contaminated, especially during an outage. (AP.) (See August, 1989 and January 19, 1992, for related incidents.)

September, 1988 - The NRC leveled a $50,000 fine against Pennsylvania Power & Light for not properly testing electrical equipment. (See "1986" for background information). (Please reference the following dates for a list of chronic electrical problems at the SSES: June 25, 1983; "1986"; February 6, 1990; July 23, 1997; June 8-16, 1999; April 8, 2004; and April 12,

2 0 0 5) .

August, 1989 - The NRC reported that a contracted employee received "a significant exposure" to radiation. NRC Inspector Jim Stair stated that the Commission is reviewing the incident and levy a fine. (Patriot News, September 15, 1989.) (See October 1, 1987 and January 19, 1992, related incidents).

September 5 , 1989 - The SSES provides about 30% of the commercial power PP&L supplies to its customers. (See June 25, 1983, for initial figures.)

April 11, 1989 - An "unusual event" was declared at the plant. (UPI, April 11, 1989.)

February 6, 1990 - "A short circuit Saturday that temporarily cut off cooling water to the Unit 1 reactor at the Susquehanna Nuclear plant...has been traced to a failed insulator, according to the unclear Regulatory Commission." ("Patriot News", February 6, 1990.)

(Please reference the following dates for a list of chronic electrical problems at the SSES: June 25, 1983; "1986"; September, 1988; July 23, 1997; June 8-16, 1999; April 8, 2004; and April 12, 2 0 0 5) .

November 28, 1990 - "The Nuclear Regulatory Commission Wednesday fined Pennsylvania Power & Light $25,000 for failing to promptly certify that components at its Susquehanna nuclear power plant would continue to function during an accident. The Allentown-based utility said it would not contest the fine." (UPI, November 28, 1990.)

March 5 and 9, 1992 - PP&L received $55 million in a settlement with General Electric over the Mark II containment structure. ("Electric Utility Week" and "Nucleonics Week.") The rate payers received a $55 million amortized rebate over five years beginning on April 1, 1992 and ending March 31, 1997. The arrangement was approved by the PUC as part of a Special Base Rate Credit Adjustment. (Docket # P91052). Customers rates decreased by .59%.

July 30, 1992 - Federal regulators say that a safety mechanism used by three Pennsylvania nuclear power plants [including Susquehanna] might fail to alert operators about a drop in the water level -- a condition which could lead to a

nuclear accident." (States News Service, July 30, 1992.)

January 19, 1992 - PP&L Shareowners' Newsletter, February 3, 1992: "One of our employees was injured in a small hydrogen explosion and contaminated with radioactive material. He suffered burns to his chest and face...A second employee was examined and released after complaining of ringing in the ears after the explosion."
"The accident occurred in the basement of the plant's turbine building during work on an out-of-service recombiner -- equipment that combines hydrogen and oxygen to make water. A review team has found that a leak in a valve on the system allowed the hydrogen gas to build up in the pipe where the employee was working with a grinding wheel. New work procedures have been put in place to more clearly label hazards, and to institute safeguards aimed at preventing such incidents in the future." (See October 1, 1987 & August, 1989, for related incidents.)- December 31, 1992 - Two PP&L engineers charged that Susquehanna's highly radioactive spent fuel pools are unsafe and that if emergency cooling systems fail, a meltdown of spent fuel elements could occur. They told the NRC they reported their concerns to PP&L in March, 1992, and the company dismissed the matter and then tried to fire the engineers. The engineers, Donald Prevatte and David Lochbaum, are consultants for several companies. PP&L's spent fuel pool design is utilized by 1/3 of the nation's 109 nuclear power plants. (See October 1, 1993 for follow-up, February 9, 1996 and 1998 for similar patters of harassment.)

March 7, 1993 - PP&L backed a reduction in nuclear power plant drug testing. According to the Times-Leader, "Only four employees at the Susquehanna nuclear power plant tested positive for drugs and alcohol in 1992, fewer than the previous year."

May 26, 1993 - PP&L "determined that the 'C' EDG level indicating instrument had drifted in a nonconservative direction." (LER, 93-003.)

July 1, 1993 - An INPO inspection "pointed out some areas for improvement at the plant, and we're taking appropriate action." (Shareowners' Newsletter, July 1, 1993.)

July 12, 1993 - While Unit -1 was operating at 100%

power, a reactor scram occurred when the Main Turbine tripped. (LER, 93-008.)

July 12 to August 1, 1993 - Mechanical problems forced Unit-1 out of service for seven weeks. "The unit shut down automatically July 12 when vibrations caused two large turbine blades to break loose, damaging the turbine and other nonnuclear components of the unit." (PPL, Shareowners' Newsletter, October 1, 1993.) (Refer to July 1- 15, 1999, for related problems). - September 10, 1993 - Power at Unit-2 was reduced to 40% for "control rod sequence" and "reactor recirc motor generator set brush change outs."

September 24, 1993 - A power reduction was initiated at Unit-1 due to the inoperability of RHR instrumentation; power was held at 26%. (Refer to February 28 and August, 1999, for related problems).

October 1, 1993 - During an NRC presentation, David Lochbaum and Donald Prevatte postulated that failure in spent fuel pool cooling could possibly lead to safety-related equipment failure and a full core meltdown. (See July 30, 1992.)

October 28, 1993 - At Unit-1, "PP&L suspended [fuel] loading after experiencing three fuel-loading problems in a 36 hour period" ("Patriot," February 2, 1994.) Unit-1 was due to be back on line by November but not return to service until January 22, 1994; four days after a record demand for electric. (See July 1 and August 1994 for follow-up.)

January 1, 1994 - "Unit-1 at our Susquehanna nuclear plant, out of service since Sept. 25 for refueling and maintenance, is expected to resume operation in early January. Its return was delayed by a series of problems with our fuelloading operations...In an unrelated development, we further extended the refueling outage to replace metal support beams for pumps that circulate water inside the reactor. We took the action after problems developed with the components at a similar nuclear plant in Mississippi [Grand Gulf]" (PPL, Shareowners' Newsletter, January 1, 1994.)

January 22, 1994 - Unit-2 tripped and created further

problems for the PJM depleted grid. (Refer to June 28, 2000, for reliability related problems at the SSES.)
(Also, see May 9, 2000 & January through March, 2001, for PJM problems related to PPL. Refer to June 14, 2002, October 19, 2002, and June 19, 2003, for incidents involving PPL's manipulation of the PJM grid). - July 1, 1994 - "The extended refueling outage at Unit-1 last October resulted in two citations from the NRC, but the agency decided that a fine was not appropriate, noting the prompt and effective actions we took to prevent future fuelhandling problems...The citations dealt with violations of certain NRC requirements during portions of the refueling outage" (PPL Shareowners Newsletter, July 1, 1994.) (See October 28, 1993 and August 1994 for related incidents.)

August, 1994 - "Safety is our first priority at Susquehanna, and the NRC evaluation [SALP] reflects our continuing emphasis on it. It also points out some areas where we can improve, including refueling activities and corrective action programs" (PPL, Connect, August 1994.) (See October 28, 1993, and July 1, 1994 for related incidents.)

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 material used in more than 70 nuclear reactors [including Susquehanna]" (The Nuclear Monitor, October 17, 1994.)
(For related incidents, see April 14, 1995 and October 1, 1996.)

December 1994 - PP&L joined a consortium of 33 nuclear utilities actively pressuring the Mescalero Apaches to accept high-level radioactive waste.

January 1 through December 31, 1995 - Unit-1 complied 18 Licensee Event Reports (LER) and one Severity Level III violation. Susquehanna 2 listed 17 LERs and one Severity Level III and IV violation. (Nuclear Regulatory Commission.)- March 16, 1995 - PP&L agreed to pay the PUC $300,000 to settle alleged violations of customer service requirements. The Settlement is the result of an informal PUC Bureau of Consumer Services investigation concluded in October, 1994. (See June 28, 1999, for related behavior.)

April 14, 1995 - "Documents obtained by NIRS under the Freedom of Information Act indicate that Pennsylvania Power & Light (PPL) conducted its own tests of Thermo-Lag in 1981 prior to its installation at Susquehanna. Under standard testing criteria, the Thermo-Lag failed the tests. But PP&L used it anyway. (For related developments see September 29, 1994 and October 1, 1996.)
"The Problem was discovered by the NRC's Office of Inspector General in 1992, and the NRC staff investigated the issue. The staff found other fire protection violations as well, but issued no fines and did not even cite PP&L for the ThermoLag violation." (The Nuclear Monitor," April 10, 1995.) (See September 29, 1994.)

April 15, 1995 - Unit-2 scrammed. The uninterruptible power supply failed during recovery. (See June 6, 1995 for related incident.)

June 6, 1995 - Unit-2 was at 100% power when a loss of instrument AC at panels 2Y218 and 2Y219 occurred due to the failure of uninterruptible power supply (UPS) 2D240." NRC, MR Number 1-95-0081. Dockets: 50-238, BWR/GE-4.) (See April 15, 1995 for related incident.)

August 22, 1995 "...while performing a fuel shuffle from the Unit 2 fuel vault to the fuel preparation machine, a new fuel bundle fell into the fuel preparation machine in the spent fuel pool when the grapple separated from the hoist cable. The bundle was being lowered into the machine at the time of the event and the bundle fell approximately 15-20 feet through water until it impacted the lower carriage support plate." Morning Report-Region I, August 23, 1995.)
(See February 1, 1999 & August 5, 2002, for related events). - November, 1995 - PPL rebuffs two efforts by PECO to acquire PP&L in a hostile acquisition.

November 14, 1995 - PPL cut 300 jobs or 4.5% of its work force in an attempt to cut $671 million in operating costs. (See "From, 1985 - 1994" and June 19, 2002, for more job cuts.)

December 11, 1995 - A nonconservative error was reported in core thermal power calculations for both units. As a

result, “Both units were reduced in power by 2 MWe to account for the discrepancy.” (“Licensee 24 Hour Report,” December 11, 1995.)

- 1996 - New Accounting Standards, SFAS 121 adopted on January 1, 1996. Previous standards relied on SFAS 71. (Refer to 2002 for a related development.)

January 1 through May 31, 1996 - Susquehanna 1 listed nine Licensee Event Reports (LER) and two Severity Level IV violations. Unit 2 compiled two LER’s and and three Level IV violations. (Nuclear Regulatory Commission.)

February 9, 1996 - The NRC informed PP&L that the Company would be fined $100,000 for disciplining a security officer for raising safety concerns in 1992. In October, 1995, the United States Department of Labor found that the security officer was “subjected to adverse action” for raising concerns about the the administration of security requalification exam. (See October 1, 1993, February 9, 1996 and 1998 for similar patters of harassment.)

June 12, 1996 - “A third alleged violation which was cited but for which no fine has been proposed involved a non-licensed operator’s failure to follow administrative procedures for controlling the status of equipment associated with the Standby Liquid Control System. The system’s purpose is to shutdown the reactor during an emergency by injecting a neutron-absorbing

Continued on the following page...solution into it via the core spray system. On June 12, 1996, the operator repositioned a breaker switch, resulting in the deenergization of heat tracing for an operable standby liquid control pump for 34 hours.” (NRC Press Release, July 23, 1997.)

July 30, 1996 - “...a containment isolation valve valve was opened and deactivated for 24 hours, rendering the valve inoperable. The valve had been deactivated for preventive maintenance work but without the proper actions taken to comply with the plant’s technical specification requirements. “The problem was significant because PP&L’s incorrect interpretation of requirements would have allowed the valve to remain inoperable and open indefinitely. A fine of $50,00 has been proposed for that alleged violation.” (NRC Press Release, July 23, 1993. (See July 23, 1993 for more complete date from the NRC.)

September 5, 1996 - The Company joined a consortium of

electric utilities exploring the use of MOX, or weapons grade plutonium left over from the Cold War, as a fuel source.

October 1, 1996 - The Nuclear Regulatory Commission fined Thermal Sciences, Inc., $900,000 for "deliberately providing inaccurate or incomplete information to the NRC concerning TSI's fire endurance and ampacity testing programs." James Lieberman, NRC, Director of Enforcement. The fine was the largest assessed against a nuclear contractor, and the second highest in NRC history. In 1992, the NRC declared TSI's fire barrier, Thermo-Lag, "inoperable." (For background data please refer to September 29, 1994 & April 15, 1995.)

November 5, 1996 - The Class 1E 4160 VAC Switch gear failed to pass seismic qualification testing at Unit-1 & Unit-2. PP&L reported an "outside design basis" (#31279) event. (See August, 1999, for more information.)- July, 1997 - The NRC "found that the load limit setting on one of the [emergency diesel] generators had been positioned at approximately 35 percent, when it should have remained at 100 percent. The misalignment, which was subsequently determined to have occurred sometime between June 16 and July 11, could have resulted in the governor not starting within the required time and not being able to provide sufficient emergency backup power during an accident. Furthermore, the operation of the generator at a lower-than-normal speed could have damaged emergency core cooling system motors." (See January 12, 1998, for information on the NRC's enforcement actions.)

July 23, 1997 - "The Nuclear Regulatory Commission has proposed a $210,000 fine against Pennsylvania Power & Light Co. for several alleged violations of agency guidelines at the utility's Susquehanna nuclear power plant in Berwick, Pa. The alleged infractions fall into two major areas: the misalignment of a circuit breaker for an emergency diesel generator that left in operable, and plant operators' repeated failure to detect this problem; and the improper deactivation of a containment isolation valve:

"...All told, the generator was out of service for almost three weeks. However, in their equipment test records, the operators incorrectly reported that the circuit breaker was inn the appropriate position.

"Further, alarm tests that were supposed to have been done during rounds by the non-licensed operators were listed as

having been performed when in many cases that did not occur. The operators failed to perform the required panel tests on approximately 157 occasions between January and June 1996.

"Given the number of individuals involved, the actual and potential impact in equipment, the duration of the problem and the lack of management and supervisory oversight that resulted in the failure to detect this widespread condition, the NRC is classifying these alleged violations in the aggregate as a Severity Level II problem, which constitutes a very significant regulatory concern. ...Continued on the following page... "According to the NRC, "[t]his case represents particularly poor license performance, as evidenced by 1.) the nature of the violations associated with the Severity Level II problem, including the inoperability of the diesel generator for almost three weeks and the number of employees involved; 2.) the extensiveness of the problem with inaccurate records; and 3.) the management and supervisory failures demonstrated by these violations." (NRC Press Release, July 23, 1997.)
(See June 12, 1996 and July 30, 1996; April 8, 2004; and April 12, 2005 for other incidents cited in this violation.)

(Please reference the following dates for a list of chronic electrical problems at the SSES: June 25, 1983; "1986"; September, 1988; February 6, 1990; and, June 8-16, 1999.)

September, 1997 - "...Reported earnings for the quarter and year-to-date were influenced by several one time adjustments. First, a windfall profits tax in the United Kingdom based on PP&L Global's equity interest in a U.K. utility reduced earnings by about $40 million or 24 cents per share."
("Quarterly Review: PP&L Resources, Inc.", September 1997).
(Please refer to February 4, 2000, 2002: PPL kills expansion; earnings projections slashed and, April 26, 2003, for related developments).

October 22, 1997 - Unit-1 and Unit-2's suppression pools were identified as having the potential for bypass during a lossof-coolant-accident. PP&L reported an "outside design basis" (#33131) event. (See August, 1999, for more information.)

January 12, 1998 - "The Nuclear Regulatory Commission staff has proposed a $55,000 fine against the operator of the Susquehanna nuclear power plant for a violation of agency requirements involving a misaligned emergency diesel generator at the facility...
"In a letter to PP&L announcing the enforcement action,

NRC Region I Administrator Hubert J. Miller said that the failure caused 'important safety-related equipment to be inoperable for an indeterminate period, thus degrading the plant's capability to respond to accidents.
Continued on the following page... "Further, the NRC is concerned that you failed to implement effective controls for the alignment of the Woodward governor controls despite the fact that multiple events involving the functioning of the Woodward governors have been identified in the industry between 1985 and the present,' including three at Susquehanna."
Mr. Miller also noted that the "NRC is concerned that your investigation of the event could not preclude tampering as a cause and that the investigations revealed at least two other recent instances of unexplained misalignment of out-of-service EDG's (emergency diesel generators) similar to the misalignment of the 'A" EDG." (NRC Press release, January 12, 1998.) (See July 11, 1997 for more on this incident.)

March 13, 1998 - "Earnings for 1997 were $296 million, or $1.80 per share of common stock, compared with $329 million, or $2.05 per share in 1996." (PP&L Resources, Inc., A Common Sense Guide to Competition, 1997 Summary Annual Report.)

April 5, 1998 - Unit-2 was shut down manually due to a leak on the non-nuclear side of the water cooling system. (Lancaster Sunday News, April 5, 1998.)

May 15, 1998 - The PUC gave tentative approval, by a 5-0 vote, to a plan for PP&L's restructuring that could save rate payers 10% on monthly bills. The Commission slashed the amount of stranded costs PP&L may recover to $2.864 billion. The company had sought $4.5 billion and PUC administrative law judge [Kashi] suggested $4 billion." ("The Patriot News", May 15, 1998.)

August 13, 1998 - The Pennsylvania Public Utility Commission adopted a tentative order approving PP&L's restructuring case. Provisions include a 4% rate decrease for all customers in 1999, allows PP&L to recover $2.97 billion in "stranded expenses" over 11 years, and grants PP&L the opportunity to "securitize up to $2.97 billion in transition costs with 75% of the associated savings returned to rate payers. - September 4, 1998 - "Standard & Poor's last week assigned its Triple B-plus rating to PP&L Inc." (Dean Witter Reynolds Inc. and Standard & Poors Value Line, September 4, 1998.)

- 1998 - The Company was forced by the U.S. Department of Labor to rehire Donald Ranft, manager of the nuclear system engineering department. PP&L paid Mr. Ranft over $100,000 in back pay and legal fees. Mr. Ranft was forced out of his job after safety concerns he raised were not addressed. PP&L also pressured Mr. Ranft, a ten year veteran of the nuclear industry, not to report his safety concerns to the NRC. (See February 9, 1996, for a similar incident.
(See October 1, 1993, February 9, 1996 and 1998 for similar patterns of h a r a s s m e n t.)

December 27, 1998 - "For the 12 months that ended Sept. 30, PP&L reported a net loss of $3.51 a share, compared to earnings of $1.81 a share the year before." (Patriot News from Dean Witter Inc. and Standard & Poors Value Line.)
(See April 1999, for related development.)

February 1, 1999 - PP&L announced the arrival of dry storage casks designed by Trans Nuclear (Vectra) for spent fuel storage. The NRC approved the license and design of the casks scheduled to be operational by in the summer of 1999. Construction for this project resumed after a cessation of activity in fall 1998. PP&L has moved the scheduled operational date back to "late 1999." (PP&L, May 12, 1999.)
(See August 22, 1995 & August 5, 2002, for related events).

February 28, 1999 - The Company reported an "outside design basis" event (#35423) relating to a valve stem in the RHR. (See August, 1999, for more information. Refer to September 24, 1993, for a related incident).
- Mid-March until the end of April, 1999 - Extended refueling outage for Unit-2. However, the potential for problems with the main transformers were not discovered. (See June 7-8, 1999.) - April 1999 - "PP&L Resources reported a 1998 loss of $3.46 per share, reflecting $948 million of charges to net income related to the settlement of PP&L, Inc.'s restructuring case before the Pennsylvania Public Utility Commission and another other competition-related case before the Federal Energy Regulatory Commission." (PP&L Resources, Inc., Shareowner News.)
"The utility's dividend payout ratio was 64 percent on Dec. 31, 1998, compared with 82 percent on Dec. 31, 1997." (Patriot News from Dean Witter Reynolds Inc. and Standard and Poors Value Line.) (See December 27, 1998, for earlier announcement.)

March 13 to April 28, 1999 - Unit-2 was shut down for a

planned refueling outage.

May 29-June 5, 1999 - Unit-1 was manually shut down. A change out celluloid valve in one of the steam lines was the root cause of the problem. Unit-1 was put back on-line from June 5-6, 1999.

June 7-8, 1999 - Unit-2 tripped due to a problem with one of the main transformers. PP&L plans to replace the troubled unit. (See "Summer 2000.")

June 8-16, 1999 - Unit-2 was shut down to replace "three main electrical transformers..." ("News Release(s)", PPL, June 8 & 16, 1999.)

(Please reference the following dates for a list of chronic electrical problems at the SSES: June 25, 1983; "1986"; September, 1988; February 6, 1990; and, July 23, 1997.)

June 28, 1999 - PP&L was assessed a $125,000 fine by the Attorney General relating to the Company's electric competition advertising and bill-stuffing. (See March 16, 1995, for related behavior).- July 1- 15, 1999 - Unit-1 was shut down automatically after one of the four main steam valves failed." The line carries steam from the reactor to the turbines..." ("News Release(s), PPL, July 1 & 15, 2000.) (Refer to July 12 to August 1, 1993, for related problems).

August, 1999 - "If a utility has operated the 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 deigned." (James Riccio, Public Citizen, August 1999, Executive Summary.) (Refer to November 5, 1996; October 22, 1997; and, February 28, 1999.)

August 26, 1999 - Both Units were operating at 100% power, "with the 'B' loop of emergency service water (ESW) out of service for scheduled maintenance. During testing on the ESW system, with all ESW pumps in service, it was identified that the 'C' and 'D' ESW pumps' discharge check valves were closed. The ESW flow surveillance was performed, and the 'C' and 'D' ESW pumps failed to achieve the required flow and were declared inoperable. Concurrently, the 'B' loop of ESW was returned to

service.
"During the time the 'B' ESW loop was inoperable, the 'A' ESW pump was the only one operable ESW pump. This constitutes a serious degradation of the plant in that it is a condition which is outside of a design basis and, therefore, reportable...requiring a 1-hour notification." (PP&L facsimile.)

September 6, 1999 - PPL "planned to initiate the first fuel transfer to the storage location the week of September 6, 1999, but problems developed and the transfer has been delayed for a few weeks." (Office of Nuclear Reactor Regulation).- December 19-24, 1999 - Unit-2 was shutdown to make
"repairs [replace] to a pipe" connected to the "water pressure on a recirculation water pump". this system is part of the plant's primary containment structure. (News Release, PPL, December 24, 1999).
(See August 17-25, 2000, for a related problem at Unit-1).

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.)
- Winter 1999 - 2000 - PPL unilaterally devaluated the combined PURTA and Real Estate tax assessments for the SSES. Prior to the Negotiated Settlement, the nuclear power generating stations were assessed by PP&L at approximately $1 billion. PPL is now claiming that the the SSES is only worth $74 million or the same amount as the valuation of the Columbia Hospital. If PPL prevails, the Berwick School District and Luzerne County will experience revenue shock. PPL is not paying or escrowing any moneys they owe to Luzerne County and the Berwick School district.
(See April 23, 2001 and July 13, 2003, for related developments).

February 4, 2000 - "PP&L Capital Funding Inc.'s new $500 million 7 3/4% issue of medium term notes (MTN) due April 15, 2005 is rated /BBB+' by Fitch IBCA, Inc. PP&L Capital is a wholly-owned subsidiary of PP&L Resources, Inc. (Resources) and the funding conduit for Resources and its nonregulated subsidiaries, which invest in domestic and

international energy projects...Resources has investments and commitments to invest about $2.6 billion in distribution, transmission and generation facilities in the US, UK, Bolivia, Peru, Argentina, Peru, Spain, Portugal, Chile, and El Salvador. Resources also plans to add about 8,000 megawatts (MW) of merchant generation over the next four to five years through acquisitions and/or new construction. The growing exposure to emerging markets and merchant generation will increase business risk." (PP&L, Company Press Release, February 4, 2000.)

Continued on the following page...

(Please refer to September, 1997, 2002: PPL kills expansion; earnings projections slashed May 4, 2000, and March 4 & 18, September 23 & October 24, 2001, January 6, 2002, and April 26, 2003, for related de v e lopment s) .

May 4, 2000 - "One thing cushioning the blow to stockholders is GPU's annual dividend, raised this year to $2.18 a share. That is considerably higher than Allentown-based PPL Corp.'s dividend, which was raised last week to a $1.06 share. PPL stock is trading less than GPU shares." (Patriot News, Business, B9, May 5, 2000.)

(Please refer to February 4, 2000, and March 4 & 18, September 23 & October 24, 2001, for related developments).

May 5, 2000 - Unit-1 returned to service after a planned outage.

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.

(See January 22, 1994 and January through March, 2001, for PJM problems related to PPL. Refer to June 14 & October 19, 2002 and June 19, 2003 , for PPL's manipulation of the PJM grid).

"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 this summer for consumers stretching from Virginia Beach to Detroit. "The all-time maximum PJM demand of 51,700 MW occurred on July 6, 1999." (PECO Energy Company, Form 10-K/A, p.7). (Refer to June 14 & October 19, 2002, for PPL's manipulation

of the PJM grid).

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." (Irwin Popowsky, Consumer Advocate, Investor's Business Daily).
(See July 12 to August 1, 1993, January 1,1994, January 22,1994, July 1, 1994, April 15, 1995, Mid-March until the end of April, 1999, May 29-June 5, 1999, December 19-24, 1999, and August 17-25, 2000 for data relating to SSES's reliability. Refer to June 14, 2002, and June 19, 2003 for PPL's manipulation of the "Grid").

August 17-25, 2000 - Unit-2 was shut down to make repairs on a "small leak in the instrument line [inside the primary containment area]...on a large water pump". ("News Release(s)," PPL, August 17 & 25, 2000.) (See December 19-24, 1999, for a related problem at Unit-1.)

October 30, 2000 - PPL petitioned the NRC to increase the capacity of SSES by 100 megawatts. (See April 23, 2001, for follow-up.) - January through March, 2001 - PPL manipulated the Installed Capacity Market (ICAP) of the Pennsylvania-JerseyMaryland (PJM) Grid. PPL, identified as "E 1" in PJM and PUC investigations, manipulated the ICAP market during the first quarter of the 2001, but ICAP prices remain volatile. PPL's exercise of unilateral and documented abuses of its market power in the PJM capacity credit market during the first quarter of 2001 dramatically and artificially increased credit capacity markets to the economic detriment of Pennsylvania consumers.
(Refer to November 30, 2001, for a follow-up investigation.Also see June 14 & October 19, 2002, and June 19, 2003, for PPL's manipulation of the PJM grid.)

March 4, 2001 - "PPL stock was raised from 'hold' to "buy' by...Argus Research Corp." (See March 18, 2001, for a related development). (Sunday Patriot News, March 4, 2001).
(Please refer to February 4 & May 4, 2000, and March 18, September 23 & October 24, 2001, and January 6, 2002, for related developments).

March 18, 2001- "PPL stock was downgraded from 'strong

buy' to 'buy' by analyst Paul Patterson at Credit Suisse First Boston." (See March 4, 2001, for a related development) (Sunday Patriot News, Business, March 18, 2001). (Please refer to February 4 & May 4, 2000, September 23 & October 24, 2001, and January 6, 2002, for related developments).

April 23, 2001 - PPL announced it would petition the NRC to increase the capacity of SSES by 100 megawatts, while decreasing the properly value of the plant. "The $120 million of improvements at the Susquehanna plant are expected to add to earnings as soon as they go into operation" (Reuters, April 23, 2001).(Please refer to Winter 1999 - Winter 2000, for background information).
(Please see July 17, 2001, for follow-up data.) - July 17, 2001 - The NRC approved PPL's capacity
expansion request. Unit 1 will be increased this month while the upgrade at Unit 2 is planned for Spring, 2002, after the planned refueling outage. (See October 30, 2000 & April 23, 2001, for background information).

August 23, 2001 - An "unusual event" was declared "after plant security apprehended a man inside a vehicle access area at one of the plant's gates." The man was not armed, but scaled one security fence. (PPL Susquehanna LLC, Press Release, August 23, 2001).

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 rower plants. A final decision is expected in November l, 2002. The Nuclear Energy Institute, PPL's "voice in Washington, "recommended" that the Petition be "denied."

September 23, 2001 - After trading resumed on September 17, 2001, PPL closed down -$5.10 at $37.00 ABN Amro rated the stock as "hold" and the "target price range is $49 to $50. a share." ("Sunday Patriot News", Business, September 23, 2001.
(Please refer to February 4 & May 4, 2000, and March 4 & 18, October 24, 2001, and January 6, 2002, for related developments).

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 requited 13 "prompt actions which are "safeguarded" and "classified."
(See October 17, 2001, for a related incident.) - 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, for a related event.)
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 24, 2001 - Wachovia downgraded PPL Resources from "strong buy" to "market perform." (Also see March 18, & September 23, 2001.)
(Please refer to February 4 & May 4, 2000, and March 4, and October 24, 2001, and January 6, 2002 for related developments).

November, 2001 - PPL filed a pre-notification letter with the NRC announcing plans to extend Susquehanna's operating licensees for Units 1 & 2. To date, the NRC has approved every license extension before the agency. A similar affirmation at the SSES would extend the license for Unit-1 from 2022 to 2042 and Unit-2 from 2024 to 2044.- 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 deployed to protect nuclear facilities against terrorist attacks (See October 6 & 17, 2001, January 30, 2002, and May 22, 2003 for related incidents).

November 30, 2001 - The PUC ordered an Investigation into PJM's ICAP market manipulation. (See January to March, 2001, for data relating to ICAP market manipulation. See December 6, 2001, for "market response", and PUC follow-up on June 16, 2002. Also, refer to January 6, 2002 & October 19, 2002, for plant cancellations and a revised earnings forecast.)

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.)

Earlier, on 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.]

(Please refer to February 4 & May 4, 2000, and March 4 & 18, September 23 & October 24, 2001, for related developments).

PPL's stock fell by 3% due to events surrounding PPL's ICAP market manipulation.

(See January to March, 2001, for data relating to ICAP market manipulation. Also, please refer to November 30, 2001, January 6, 2002 and June 19, 2003)

January 6, 2002 - "PPL lowered its 2002 earnings forecast a second time and canceled plans for six new power plants, citing a continuing drop in wholesale energy profit margins and fallout form the Enron bankruptcy." (Sunday Patriot News, Business, January 6, 2002).

PPL's stock closed at $32.34 on Friday, January 4, 2002. Its 52-week high was $62.36. (Please refer to November 30 and December 1, 2001, for related developments.)

(Please refer to February 4 & May 4, 2000, and March 4 & 18, September 23 & October 24, 2001, for related developments).

2002: PPL kills expansion; earnings projections slashed

Citing Enron Corp.'s bankruptcy and plans to cancel construction of six new power plants, PPL Corp. slashed its earnings forecasts for 2001 and 2002. In a filing with the Securities and Exchange Commission, the Allentown, Pa.-based utility said it's scaling back its generation-expansion program as a result of continuing declines in wholesale energy prices. PPL previously announced plans to develop an additional 4,605 megawatts of generating capacity. It cut projects that would have produced 2,100 megawatts of power. (One megawatt heats about 600 homes.) Though PPL said it still sees a need for new generating capacity, market prices and regulatory conditions deterred it from building six new power plants, five in Pennsylvania and one in Washington state. The cancellations of $1.3 billion worth of projects will cause PPL to take its biggest charge in its 2001 earnings. In addition, Houston-based Enron's bankruptcy filing caused some PPL subsidiaries to end electricity and gas agreements. PPL now expects 2001 earnings per share of $3.35 to $3.45, down from an initial projection of more than $4 per share, with flat growth for 2001.

Market researcher Thomson Financial/First Call had released a consensus estimate of $4.13 for 2001 and $4.16 for 2002. PPL's earnings

estimate includes a 60-cent charge for canceling its order of 22 turbines from General Electric Co. for the nixed power plants. PPL's revised estimate also includes a 14-cent charge from the Enron-related write-off of Western Power Distribution, its United Kingdom affiliate, and a 6-cent charge from other Enron-related items. PPL had a 51 percent interest in Western Power. Brazil's drought and poor economic conditions also will hurt the earnings from PPL's Latin American operations, the company said.

In addition, a change in the accounting rules for goodwill could hurt PPL's earnings, though the company said it can't yet quantify such an impact, if any.

(Refer to 1996 for a related development.)

January 9, 2002 - A well-armed, disgruntled former employee at the San Onfore nuclear power plant in San Clemente was arrested for making threats against the plant. (See October, 6, 2001, and January 30, and December 10, 2002, for related incidents.)- January 29, 2002 - PPL notified the Nuclear Regulatory
Commission (NRC) that it intended to file for renewal of the operating licenses for SSES Units 2 and 3. If approved, Unit' 1's license would be extended from 2022 and Unit 3's from 2024 for an additional 20 year period.
The Nuclear Regulatory Commission is expected to take two years to review the license renewal application. 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.

January 30, 2002 - President Bush's State of the Union Address including a warning that nuclear power plants may be targeted for a terrorist attack.
(See October 6 & 17 and November 7, 2001, and January 9, 2002 for related events.)

March 28, 2002 - The NRC admitted that and the the SSES and the nation's 102 nuclear power plants could not withstand an impact of airplane the size of those that crashed into the Pentagon and World Trade Center on September 11, 2001.
(March 28, 2002, Patriot News.) (See October 6 & October 17, 2001 and January 9 and 30, 2002, for related incidents.) - April 3, 2002 - "Two men and a male juvenile from Mexico face
possible deportation after attempting to enter an unprotected area of the Peach Bottom Atomic Power Station. All three remained in INS custody Wednesday." (York Daily Record, April 4, 2002.)
(See October 6, 2001 & October 17, January, 9 and 30, 2002 for related incidents.)

April 29, 2002 - At PPL's annual shareholder meeting, Bill Hecht

told the audience the Company is "agile and robust" and predicted above average earnings. Hecht noted that he was navigating PPL through the most volatile period in the history of the electric industry." (Restructuring Today, April 29, 2002.

May 5, 2002 - PPL stock was rated 'hold' by UBS Warburg. ' (Sunday Patriot News, May 5, 2005).

May 8, 2002 - The NRC found PPL's emergency preparedness plan for the SSES lacked adequate staffing. In 2001 the Commission documented under staffing on several different occasions. PPL submitted a compliance plan on May 13, 2002. (Philadelphia Inquirer, May 8, 2002).

May 15, 2002 - "A foreign intelligence service recently warned that a nuclear power plant in the Northeast could be the target of a July 4 terrorist attack...Published reports suggested that the target could be Pennsylvania's Three Mile Island, but a second US official with knowledge of the information said no specific facility had been named." (Knight Ridder, May 15, 2002.) (See January, 2001, October 6, 2001 & October 17, January, 9 and 30, 2002, and March 21, for related incidents.)

June 12, 2002 - The Bio-Terrorism Bill signed into law on June 12, 2002 mandates KI stockpiles out to 20 miles.

June 14, 2002 - The Pennsylvania Public Utility Commission accused PPL of gaming the capacity market in the PJM grid in early 2001, but asked state regulators and federal authorities to investigate.
"The Pennsylvania PUC has evidence that allegedly shows PPL withheld electricity to create an artificial power shortage in the market for extra capacity where utilities buy credits to meet PJM reserve requirements.
"Such alleged activity drove up prices when the capacity price shot up from $5/mwh to a $177/mwh on average for more than three months." PPL denies the charges. ("Restructuring Today", Friday June 14, 2002.) Refer to January through March, 2001 background information, and further October 19, 2002, for additional legal action. Also, see January 22, 1994, for PJM-related problems. Refer to June 19, 2003, for results from the PA AG's investigation.)

June 17, 2002 - PPL traveled to Wall Street to assure investors the Company "has long-standing policies to ensure that, across the company, the actions of our marketing operation are ethical and legal, John R. Biggar, CFO, (Philadelphia Inquirer, June 18, 2002.)- June 19, 2002 - PPL cut its work force by 7%. On June 1, 2002,

"Public Utilities Fortnightly" published a list of highest paid electric CEO's. PPL's William Hecht was ranked 31 at $1,197,500. (See "From, 1985 - 1994" and November 14, 1995, for more on job cuts.)

August 5, 2002 - The NRC issued a Severity III Violation for a "mix- up of gases in a spent fuel storage cask at Susquehanna last summer, and the company said it would not contest finding...", and pay the $15,000 base civil penalty. PPL spokesman Herbert Woodeshick said: "We have cooperated with the NRC throughout its investigation of this matter, and we respect the commission's decision in determining that the incident constituted a level III violation" (Nuclear Fuel, February 3, 2003).
(See also August 22, 1995 and February 1, 1999).

September 5, 2002 -- Three Mile Island Alert filed a formal Petition for Rulemaking with the Nuclear Regulatory Commission to include day-care centers and nursery schools in emergency evacuation planning. The proposed rule would affect all 103 operating nuclear plants in the United States.

September 9 , 2002 - Standard & Poor's downgraded PPL's rating.

September 10, 2002 - The Office of Homeland Security announced that the "yellow" warning had been increased to a heightened state of alert or an "orange" upgrade at 1:00 pm... (Exelon Public Relations.)

October 3, 2002 BERWICK, Pa. (AP) - A fire broke out early Thursday at PPL's Susquehanna nuclear power plant and was quickly put out, officials said.
The fire, detected at around 2:30 a.m., was confined to a startup transformer on Unit 2, according to a company news release. An automatic system extinguished the flames, and the transformer will be replaced with a spare on site, PPL said.
Continued on the following page...
The fire apparently was caused by an internal failure, company spokesman Herbert Woodeshick said. He could not give a monetary estimate of the damage.
The incident was classified as an "unusual event," the least serious of four federal classifications of power plant emergencies.
PPL Corp. is a global energy company based in Allentown. The plant is in east-central Pennsylvania. (http://www.pplweb.com)

October 19 , 2002 - Fourteen boroughs brought suit against PPL

for alleged market manipulation. The boroughs include: Blakely, Catawissa, Duncannon, Haven, Kutztown, Landsdale, Lehighton, Mifflinburg, Olyphant, Perkasie, Quakerton, Saint Claire, Schuylkill, and Watsontown.
(See January 22, 1994 and January through March, 2001, for PJM problems related to PPL. Refer to September 9 & June 14, 2002, and June 19, 2003 for PPL's manipulation of the PJM grid).

November, 2002 - " Governor Schweiker "directed the National Guard to join State Police in a joint security mission at the state's nuclear facilities." In December, the Governor extended the joint mission of the National Guard and the State Police at the Commonwealth's five nuclear generating stations until March 4, 2002. (DEP, Update, December 6, 2002.)
(See October 6 & 17, 2001, January 30, 2002, November 2, 2002 and May 22, 2003 for related incidents).

December 13, 2002 - "At 1450 EST on 12/13/2002, Susquehanna LLC Main Control Room received a request for additional information from the Pennsylvania Emergency Management Agency (PEMA). PEMA received rumors that a HAZMAT team had been dispatched to Susquehanna in response to a spill associated with a potential sabotage event.

December 13, 2002 - A security challenge occurred at the SSES nuclear facility on the Susquehanna River:
"At 1450 EST on 12/13/2002, Susquehanna LLC Main Control Room received a request for additional information from the Pennsylvania Emergency Management Agency (PEMA). PEMA received rumors that a HAZMAT team had been dispatched to Susquehanna in response to a spill associated with a potential sabotage event.

"At 1158 EST a delivery truck at the owner controlled entrance gate was identified to have a saddle tank leak which resulted in a spill of approximately 10 gallons. The diesel fuel was contained by site personnel, and is in the process of being cleaned by site personnel. None of the oil reached a waterway, and therefore does not meet the requirements for a reportable spill. The delivery company contacted their contracted spill response team, and they responded to the site. They were subsequently released without performing any of the cleanup activities. The minor spill was not due to sabotage. This information has been provided to PEMA. "This report is being issued due to the involvement of other government agencies, and reportable under 10CFR50.72(b)(2)(xi)." (US NRC).

January 29, 2003 -An Unusual Event was declared due to an airborne release containing Cesium-138. An hour later, monitor readings returned to normal. (See March 4 and , 2003 for related radioactive events.)

February 23, 2003 "PPL Corp. stock is rated "overweight/neutral" in new coverage by Daniel F. Ford at Lehman Brothers. The target price is $39 a share."

February 29, 2003 - "PPL reported 2002 earnings from core operations of $3.54 a share, compared with $4.22 a share in 2001. "Sunday Patriot News").

Radioactivity found on two GE workers at Pa. nuke

March 4, 2003 " Two contract employees reported to the Susquehanna nuclear power plant in Pennsylvania with low levels of radioactive material on their clothing, owner PPL Corp. ((PPL.N)) said on Tuesday. Highly sensitive monitoring equipment at the plant detected the radioactivity on Monday as the General Electric Co. ((GE.N)) contractors were leaving an area inside a security fence, the company said in a statement.

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"The radioactive material is believed to have originated at another facility, and not at Susquehanna, the company said, and the level of radioactivity was very low. This type of event is rare but not unheard of at the nation's nuclear power reactors. But since the Sept. 11, 2001, attacks, all incidents of possible public exposure to radioactive materials receives increased scrutiny. PPL plant personnel began investigating and conducting additional radiological surveys immediately, said Joe Scopelliti, spokesman for the Susquehanna plant.

" 'At no time was the health and safety of the contractors, other Susquehanna workers or the general public affected because of this incident,' " Scopelliti said in a statement. "'The level of radioactivity on the clothing was slightly above what is seen in background radiation in the environment.'"

The contractors' previous job was at a nuclear power plant in Sweden, PPL said in its statement. Monday was their first day inside Susquehanna's security fence, however neither contractor had entered the part of the plant that contains radioactive materials, Scopelliti said. Routine radiological surveys found the areas outside that part to be free of radioactivity, PPL said. General Electric said it also was investigating. Federal regulators and state environmental officials have been notified, the company said. (See January 29, 2003 and March 25, for other releases.)

March 23, 2003 - "PPL is replacing all four steam turbines at its

Susquehanna nuclear plant near Berwick" ("Sunday Patriot News", March 23, 2003).

March 25, 2003 - An "unusual event" was declared when "contamination was taken off site" when "a worker "tripped on lead shielding blankets..." The event was "declared at 4:52 pm and ended at 7: 15 pm. " (Platts Nuclear News Flashes, March 25, 2003)
(See January 29 and March 4, 2003, for related incidents).

April 26, 2003 - PPL defended its $314 million investment loss in a Brazilian electric distribution company, and plans to maintain its investments in similar companies located in El Salvador in the United Kingdom (Please refer to September, 1997, February 4, 2000, and 2002: PPL kills expansion; earnings projections slashed and for related developments).
Despite management's objections, shareholders approved a resolution that "recommended" the submittal of "poison pills " to shareholders for approval. "Two other shareholder resolutions failed. One would have set limits on bonuses for PPL executives, and the other would have required that the accounting firm that does the annual PPL audit not get other business from the company" (April 26, 2003).

May 16, 2003 - PPL issued a press release indicating that they will be filing a distribution rate case at the PUC in the Spring of 2004 with proposed new rates to take effect on January 1, 2005. The press release does not specify the anticipated amount of the increase. PPL's transmission and distribution rate cap expires on December 31, 2004. Company representatives previously had informally indicated that they would file in 2004.

May 22, 2003 -- THE PENNSYLVANIA NATIONAL GUARD IS INCREASING ITS PRESENCE at the state's nuclear plants, Gov. Edward Rendell (D) announced yesterday. Since shortly after the Sept. 11, 2001 terrorist attacks until the end of last month, Pennsylvania had had a 24-hour Guard presence at the plants, but then had switched to random, unannounced security patrols, Rendell spokesman Michael Lukens said. But under Rendell's order, which went into effect yesterday, the two elements are being combined, Lukens said. He said the order would remain in effect "indefinitely," and the governor's office would continue to assess it. Rendell's announcement said he took the action in response to the recent elevation of the national threat level to orange, but Lukens said the state's assessment of the need for the Guard would not necessarily be tied to future changes in that threat level (Platts Nuclear News Flashes).
(See October 6 & 17, 2001, January 30, 2002, and November 2, 2002 for related incidents).

June 19, 2003 - The Attorney General rejected the PUC's claim that

PPL manipulated whole sale electricity prices between January and April, 2001. Although prices spikes 3o times above normal seasonal rates, the AG "determined that that PPL did not violate antitrust in acquiring that market power." The Attorney General did admit held extra capacity in 2001. FERC did not act as is satisfied with subsequent PJM rule changes will prevent future spikes. However, as result of the price gauging several smaller electric retailers were permanently forced out of the market (See June 14, 2002, for background information).

June 29, 2003 - "More than 50 Montana residents have sued PPL Corp., alleging that the Colstrip power plant PPL operates and partially owns in Montana is polluting their drinking water. PPL says there is 'no merit' to the claim" (Sunday Patriot News, June 29, 2003).

July 13, 2003 - "Utilities save big as towns lose out: Tax bills on plants of major power companies in Pennsylvania have gone from $120 million annually to $20 million (Anthony R. Wood, Inquirer Staff Writer)

While homeowners are paying an average of 30 percent more than they did in 1997, Exelon, Pennsylvania Power & Light, and the other major electric utility companies in the state are paying 85 percent less in taxes on their plants, down from about $120 million annually to about $20 million, an Inquirer analysis has found.
Meantime, the utilities are passing on their real estate levies to their customers, based not on what the companies are currently taxed but on the far higher sums of six years ago....For the previous 25 years, the power companies' property taxes
were relatively cut-and-dried. Payments were calculated by the state and put into one important pot: the Pennsylvania Utility Realty Tax Act fund, or PURTA. For 1997, $167.5 million was paid in, the bulk of it by the two electric behemoths, Peco Energy Co. and Pennsylvania Power & Light.
...When the state loosened its grip on the electric industry, the commercial power plants - 25 major ones, 55 much smaller - were gradually released from PURTA. For the first two years, 1998 and 1999, the utilities were allowed to appraise their plants for tax purposes; the fund tumbled to $60 million.
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....On Jan. 1, 2000, the plants were removed from PURTA and put on the property rolls of the locales in which they sat, to be assessed and taxed like any hometown business.
....Susquehanna nuclear power plant. Although the facility was built at a cost of $4 billion and assessed at $3.8 billion, PP&L argued in its appeal that it was worth only a fraction of that. In December 2000, a Luzerne County judge agreed, fixing the assessment at $165.4 million.

PP&L now pays $3 million annually to the county, Salem Township and the Berwick Area School District - far less than the $30 million the plant used to add each year to the PURTA pot, according to court records.The Susquehanna appeal has been by far the biggest in the state. The Common Pleas Court ruling, which paralleled PP&L's arguments virtually point for point, could set the course for other cases in Pennsylvania and around the nation, said Epstein, the consumer activist.
"[Susquehanna] was the first nuke case to come in, and it was precedent-setting," Epstein said. Since then, he added, the strategy "of driving school districts off a cliff without a seat belt" has been applied in cases around the commonwealth.
Continued on the following page...
...From 2000 through 2009, PP&L is including in its customer billings $280 million in real estate levies, according to court records. In reality, the company pays only $3 million a year on the plant - an estimated 10-year windfall of $250 million.
Study Finds Utility Winners During Deregulation Are Companies That 'Stuck to Their Knitting'

August 4, 2003 - "From 1998 to 2002, U.S. utilities leapt into deregulation and created multiple strategies to compete. Because it takes time to determine how the strategies worked, we are just seeing results now. Winners among utility companies relied on traditional regulated utility assets," said Coyne and Hartshorne. "They are firms that stuck to their knitting rather than plunging into merchant power generation or purchasing foreign power plants.
" The top five companies in annualized shareholder return were Exelon Corp., Southern Company, Entergy Corp., Western Gas Resources and PPL Corp.
" The bottom five companies in total shareholder return for the fiveyear period were Aquila Inc., Dynegy Inc., The Williams Companies, Inc., The AES Corp. and El Paso Corp."

August 6, 2003 -The NRC released NUREG 1774 which documented a 60% increase in fuel load drop events from 1993 to 2002. The Report found half of the incidents involved moving fuel assemblies at spent fuel pools, and greater risks for heavy load drops were at Boiling Water Reactors like Susquehanna (The Report #ML033060160 can be accessed through ADAMs.) (For related events at he SSES please refer to December 31, 1992; September 10 and October 1 & 28, 1993; January 1, July 1 and August 1994; August 22, 1995; and, September 5, 1996.)
POLL: Security officers expect another blackout in 12 months

August 25, 2003 - CSO Magazine polled 382 chief security officers

(CSO) and senior security executives showed 59% blamed the electric industry and not the government for the blackout of 2003.

CSOs showed their lack of confidence in the power industry and grid with 59% predicting another major blackout within 12 months. Over threequarters said they doubt the electric industry will be modernized in five years. That percentage want a probe by an independent investigator without ties to the industry. Almost half (47%) ask that the probe's results be classified to keep terrorists from learning about US vulnerabilities.

Those surveyed included 156 whose firms felt some direct impact of the outage. Many want the federal government to expand oversight of the electric industry. "Regulations are often regarded as the necessary evil in securing the nation's infrastructure," said Lew McCreary, editor of the Framingham, Mass, publication, but he was surprised that CSOs -- traditionally anti-regulation -- are calling for increased government control in this industry, "having now been faced with a glaring example of so-called market forces at work," the editor cleverly observed.

The magazine did the survey online Aug 19-21, having sent an email invitation to the web-based survey to 12,200 subscribers. The 382 are the ones that met qualifications and fully completed the survey. The sample was chosen randomly and each subscriber had an equal probability of being selected. Figure a 5% margin of error, the magazine said.

Results are at www.csoonline.com/releases/ 08220385_release.html.

(Story originally published in Restructuring Today 8/25/03.)

August 31, 2003 - "In the first half of the year, PPL posted earnings from core operations of $292 million, or $1.72 a share, compared with $262 million, or $1.77 a share, during the same period in 2002" (Sunday Patriot News, August 31, 2003).

September 11, 2003 - SUSQUEHANNA-1 WAS AT ABOUT 65% POWER TODAY AFTER A FIRE ON A FEEDWATEpump was extinguished last night. Joe Scopelliti, a spokesman for operatoPPL Susquehanna, said today that plant personnel were investigating the cause of the oil fire, which the plant fire brigade extinguished eight minutes after it started at 11:14 last night. He declined to estimate when the unit would return to full power. (Platts Nuclear News Flashes). - September 15, 2003 - SUSQUEHANNA-1 RETURNED TO FULL POWER THIS MORNING following repairs to one of the three pumps that provides water to the reactor. The repairs were necessary following a fire on Sept. 10 that was caused by a leak in a pump lubrication system. The unit was at 70% power following the fire. Herbert Woodeshick, spokesman for operator PPL Susquehanna, said the investigation into the root cause of the leak is still ongoing (Platts Nuclear News Flashes).

September 19, 2003 - "Critics say that the high electric prices and

the subsequent failure of Montana Power were evident from the start: Montana Power, which once provided the sixth lowest electric rates in the country, consented to sell off its generating plants as part of the deal to allow it to diversify into unregulated businesses. But, one buyer PP&L came in and bought all the assets. So, instead of having a steady supply from one, regulated in-state supplier, there is now one, unregulated out-ofstate supplier...

"Concerns that rates may rise even higher have prompted a voter initiative in Montana to give the state the right to buy back the assets that were sold to PP&L. That vote failed in 2002, although supporters say that they will try again in 2004... (By Ken Silvestein , Director, Energy Industry Analysis). (See June 29, 2003, for related information). Power Reactor Event Number: 40196 Facility: SUSQUEHANNA

Event Text:

AUTOMATIC SCRAM AT SUSQUEHANNA ON LOW WATER LEVEL - "At 0053 hours on September 24, 2003 with Susquehanna Unit 1 operating at 100% power an automatic reactor scram occurred due to low water level. At the time of the scram, reactor feed pump testing was in progress and the 'C' reactor feed pump tripped. The reactor recirc pumps runback initiated as expected when water level reached 30" with the feed pump tripped. Level continued to drop and reached the Level 3 auto scram setpoint. Level continued to drop and reached a low level of approximately -48" wide range. Reactor Core Isolation Cooling and High Pressure Coolant Injection auto started at their initiation setpoints and injected to the vessel to recover level. All level 2 and 3 containment isolations occurred as expected. The reactor recirc pumps tripped as expected when level 2 was reached. Reactor Pressure was controlled with bypass valves, there were no Safety Relief Valve lifts. There are no challenges to containment. "Unit 1 is currently stable in Mode 3 with both reactor recirc pumps restarted. A human performance error was the cause of the reactor feed pump trip. Investigation is continuing into the plant response to the reactor feed pump trip."

The NRC Resident Inspector was notified of this event. - NEW YORK, Sept 24 (Reuters) - PPL Corp. said on Wednesday that a unit at its Susquehanna nuclear power plant automatically shut down when one of three feedwater pumps that supply water to its reactor stopped working. The loss of the feedwater pump caused the water level in the Unit 1 reactor to drop, causing a full shutdown of the unit at 12:53 a.m. The plant is located in Luzerne County near..." (See November 13, 2003 for follow up inforamtion.)

The goal is for nuclear power plants to have 24-hour Coast Guard patrols

By SEAN ADKINS Daily Record staff Friday,

October 10, 2003 - The U.S. Coast Guard has proposed a permanent

rule that would close off sections of the Susquehanna River adjacent to Three Mile Island and Peach Bottom Atomic Power Station.

Following the terrorist attacks, the Coast Guard began patrolling temporary circular security zones around the waters that both nuclear power plants use for producing electricity.

The temporary zones act as a barrier to vessel traffic in a specific areas and work to protect power plants from damage or terrorist attack, according to a public notice published in the Federal Register.

The proposed rule is part of a national plan to switch the status of the temporary zones to that of permanent, said Neil Sheehan, spokesman for the Nuclear Regulatory Commission. The goal of that national strategy is for each of the country's 68 nuclear power plants eventually to be subject to immutable 24-hour patrols by the Coast Guard with assistance from other federal state and local agencies, he said. "The concern here is to protect the critical and vital areas of the plant," Sheehan said.

Similar to the present temporary conditions, the permanent law would prevent people and boats from entering or lingering in the security zone without prior authorization. Pending public comment that could alter the rule, plans are for the temporary zones that surround Peach Bottom Atomic Power Station and TMI in Dauphin County to become permanent by early next year. The change in zone designation from temporary to permanent will not affect plant operations, said Dana Fallano, a spokeswoman for Exelon Generation. The company worked with both the NRC and the Coast Guard to establish the zone, she said. Exelon co-owns and operates both TMI and Peach Bottom Atomic Power Station.

The security zone is not expected to disrupt charter and recreational fishermen, since those boats will be allowed to pass safely around the area, according to the public notice.

October 27, 2003 -NRC AGREED TO RELAX TWO REQUIREMENTS IN AN APRIL ORDER ON SECURITY FORCE personnel working hours. NRC Office of Nuclear Reactor Regulation Director James Dyer Oct. 23 issued notices to all reactor licensees that the agency would allow shift turnover time to be excluded from total group work hours that must be tracked. The NRC staff had wanted accounting of all hours worked for tracking overtime, which it says could lead to worker fatigue, but now agrees with the industry that tracking the extra time does impose some additional burden. Industry officials argued the shift change time is usually not more than 15 minutes. The second relaxation allows licensees to increase the work hours during force-on-force exercises from a 48- to 60-hour per week average. Dyer said the staff understands that the simulated exercises put additional demands on the security guards but the mock attacks extend only for a short period of time (Platts, Nuclear News).- NUCLEAR NEWS FLASHES - Wednesday,

October 29, 2003 --OPERATING POWER REACTOR LICENSEES MUST BE IN FULL
COMPLIANCE TODAY with NRC's April 29 order imposing measures to control the work hours for security force personnel. The industry had asked for relief in two areas of the order, and the NRC staff recently approved those requests. The industry will not have to track the time it takes for guards to change shifts in the overall group work hours and will be allowed a 60-hour limit--up from the usual 48 hours per week--in scheduling guards during the week of a force-on- force exercise. Two other April orders, one on security officer training and the other on changes to the design basis threat, require full implementation by Oct. 29, 2004. A Nuclear Energy Institute official said at a conference in Arlington, Va. today that the industry plans to ask the NRC to rescind the three orders after licensees adopt the requirements in their security plans (Platts, Nuclear News).

November 13 , 2003 - " Pennsylvania Power & Light's Susquehanna-1 was forced [to] shut down 159 hours due to low reactor water level following an indervtent trip of a feed pump during feed pump testing" (Nucleoniocs Week, p. 17.) (See September 24 2003, for initiating event.)

Nuke fund falls short of target, report says
Owners required to set aside money to dismantle plants

December 05, 2003- BY GARRY LENTON, The Patriot-News
The owners of a third of the nation's nuclear plants, including the damaged reactor at Three Mile Island, aren't setting aside enough money to dismantle the plants when they close, according to a new federal study. That could mean higher electric rates for some Pennsylvanians if companies increase their annual contributions to catch up.
If the companies don't close the shortfall, the study warns, taxpayers may face billions in cleanup costs when the plants' useful lives are ended, most likely decades from now...
The total decommissioning bill for all existing plants is estimated to be $33 billion.
The lifetime of a nuclear power plant is estimated to be 40-60 years. At that age, industry experts say, facility wear and fatigue can make continued operation unsafe. The plants are licensed by the federal Nuclear Regulatory Commission for 40 years, with the opportunity to apply for extensions.
Continued on the following page...
Under federal law, decommissioned plants must be dismantled and the land returned to pristine condition.
Pennsylvania plants that are under-funded, according to the GAO report, are Limerick 1 and 2 in Montgomery County; Peach Bottom 1 in

York County; Three Mile Island 2, and Susquehanna 1 and 2 near Berwick. Both the GAO and the NRC projections could be wrong. No one knows for sure how much it will cost to decommission a nuclear plant, because it has not been done. "Estimates are based on the volume of materials that would have to be shipped and stored," Exelon's Nesbitt said. "... Nobody really knows [what the cost will be.] You base it on the best data you have available."

Eric Epstein, president of Three Mile Island Alert, and founder of the EFMR Monitoring Fund, who has helped negotiate cost-recovery plans for nuclear plants before the Pennsylvania Utilities Commission, estimates that the industry is billions short of what will be needed.
Estimates are based on plans that assume that low-level nuclear waste from Pennsylvania plants will be shipped to a dump site that doesn't exist, Epstein said. The estimate also assumes there will be a place to store the spent fuel rods and other high-level wastes. The federal government has yet to build such a site.

December 22, 2003 - NATIONAL GUARD TROOPS BEGAN PROTECTING PENNSYLVANIA'S NUCLEAR POWER PLANTS at 7 a.m. local time today, according to Gov. Edward Rendell (D). Troops will remain at the plants as long as the threat level remains at "orange," indicating a high risk of a terrorist incident, Rendell said. Deployment of the state National Guard to the nuclear plants was among the steps the state government took to protect Pennsylvania infrastructure in response to the raising of the Homeland Security Threat Level yesterday. The nuclear plants in Pennsylvania are Beaver Valley, Limerick, Peach Bottom, Susquehanna and Three Mile Island. NRC spokesman Dave McIntyre said he was not aware of other states deploying National Guard troops to nuclear plants in response to the increased threat level (NUCLEAR NEWS FLASHES.)
Facility: SUSQUEHANNA
HQ OPS Officer: GERRY WAIG Notification Date: 01/15/2004
Notification Time: 13:03 [ET]
Event Date: 01/14/2004 Event Time: 19:50 [EST]
Last Update Date: 01/15/2004
Emergency Class: NON EMERGENCY
1 N Y 9 4 Power Operation 9 4 Power Operation
2 N Y 1 0 0 Power Operation 1 0 0 Power Operation
Event Text
OFFSITE NOTIFICATION OF ACCIDENT INVOLVING 2 TRUCKS CARRYING EMPTY NEW FUEL SHIPPING CONTAINERS
- The following information was provided by the licensee via facsimile: "On 1/14/2004 at 19:56 hours, the Shift Manager was notified by the Clinton County, PA Emergency Management Agency of vehicle accident involving trucks that were carrying a shipment from Susquehanna. The

trucks were carrying empty shipping boxes from a shipment of new fuel that had previously been delivered to Susquehanna. These empty boxes were being shipped in accordance with U.S. Department of Transportation regulations [49CFR173.428 Empty Class 7 (Rad Mat)].
"On 1/15/2004 at 10:20 hours, additional information was provided to the control room indicating that this accident could cause increased public interest due to the severity of the accident. The two tractor trailers involved in the shipment were amongst the vehicles in the accident. One of the truck drivers was seriously injured. The trucks were severely damaged. Clinton County, PA, Emergency Management Agency was called to the scene by initial responders as well as the Pennsylvania Department of Environmental Protection. Both surveyed the boxes and found no indication of radiation/contamination. The shipping boxes and vehicles are being held by the towing company until the shipping company can provide replacement vehicles."
The licensee has notified the NRC Resident Inspector.
(See March 6, 2004, for a similar accident.)

Jan. 18, 2004- Power Reactor Event Number: 40486
Facility: SUSQUEHANNA
Region: 1 State: PA
Unit: [ ] [2] [ ]
RX Type: [1] GE-4,[2] GE-4
NRC Notified By: GORDON ROBINSON
HQ OPS Officer: STEVE SANDIN Notification Date: 01/29/2004
Notification Time: 00:05 [ET]
Event Date: 01/28/2004
Event Time: 20:33 [EST]
Last Update Date: 01/29/2004
Emergency Class: NON EMERGENCY
10 CFR Section:
50.72(b)(2)(xi) - OFFSITE NOTIFICATION Person (Organization):
GLENN MEYER (R1)
U n i t SCRAM Code RX CRIT Initial PWR Initial RX Mode Current PWR Current RX Mode
2 N Y 1 0 0 Power Operation 1 0 0 Power Operation
Event Text
OFFSITE NOTIFICATION TO LOCAL LAW ENFORCEMENT DUE TO FIRE BRIGADE ACTIVATION
"At 2018 hrs, the Control Room was notified of smoke coming from the Unit 2 Vital UPS room. The Field Unit Supervisor (FUS) was dispatched to the room to investigate. At 2026 hrs, the Fire Brigade was activated. When the FUS arrived at the Vital UPS Panel he reported that there was smoke coming from the panel. He opened the panel and observed smoke coming from the transformer in the panel. He did not observe any flames at any time while dealing with the event. At 2029 hrs, Security was notified and subsequently notified the State Police at

2033 hrs. At 2033 hrs, the transformer was deenergized and the smoke began to dissipate. Entry into the Emergency Plan was evaluated and it was determined that no entry conditions exists at this time.
"Due to the notification of the Local Law Enforcement Agency, this event constitutes an Offsite Notification and therefore reportable under 10CFR50.72(b)(2)(xi) requiring a 4 hr ENS notification."
When the transformer was deenergized, all loads were automatically transferred to the alternate power supply. The loss of this transformer did not affect any safety related equipment and does not require entry into any TS LCO Action Statements.
The licensee notified state/local agencies and the NRC Resident Inspector. No press release is planned.
Power Reactor Event Number: 40498
Facility: SUSQUEHANNA Region: 1 State: PA
Unit: [1] [2] [ ]
RX Type: [1] GE-4,[2] GE-4 NRC Notified By: GRANT FERNSLER
HQ OPS Officer: MIKE RIPLEY Notification Date: 02/02/2004
Notification Time: 17:33 [ET]

February 2, 2004
Event Time: 09:01 [EST]
Emergency Class: NON EMERGENCY
Unit SCRAM Code RX CRIT Initial PWR Initial RX Mode
Current PWR Current RX Mode
1 N Y 87 Power Operation 87 Power Operation
2 N Y 1 0 0 Power Operation 1 0 0 Power Operation
Event Text
FITNESS FOR DUTY
A contractor foreman/supervisor was determined to be under the influence of alcohol during a pre-access FFD test as part of processing for unescorted access. The supervisor was denied unescorted access to the protected area. Contact the HOO for additional details The licensee notified the NRC Resident Inspector.
NRC: NRC Special Inspection Starts at Susquehanna Nuclear Plant
News Release - Region I - 2004-00
U.S. NUCLEAR REGULATORY COMMISSION
Office of Public Affairs, Region I No. I-04-003

February 9, 2004
CONTACT: Diane Screnci (610) 337-5330
Neil A. Sheehan (610) 337-5331
Several events involving loose bolts on emergency diesel generators.
The twin-reactor plant is located in Berwick, Pa., and operated by PPL Susquehanna, LLC.
The purpose of the inspection, which got under way today, is to determine the facts surrounding the discovery that several bolts on

emergency diesel generators at the plant were found to be not fully tightened during the period from March 2003 through January. Among other things, the team will independently evaluate the adequacy and quality of PPLs response and the risk significance of the problem.
Nuclear power plants generate and transmit electricity to the grid, but they also receive power back for operational purposes. If the flow of that off-site power is interrupted, emergency diesel generators are relied upon to power key safety systems and safely shut down the plant. As such, their proper functioning is of vital importance to plant safety. The Susquehanna plant has five emergency diesel generators.
In March 2003, a bolt on a linkage that controls the diesel fuel supply for one of the plants emergency diesel generators fell off during routine testing, forcing the engines shutdown. On January 25 -- again during routine testing -- PPL found the mounting bolts for the governor, or control, on another emergency diesel generator were not fully tightened. In addition, workers observed oil leaking from under the control. That engine also had to be shut down during testing due to the problems. Subsequently, PPL on January 30 identified several bolts that were not fully tightened on a lube oil cooler, or heat exchanger, for a third emergency diesel generator.
The three-member NRC team will document its findings in an inspection report that will be issued no more than 45 days after the exit meeting for the review.
Last revised Tuesday, February 10, 2004

February 28, 2004 - SSES shut down for refueling and maintenance.
Power Reactor Event Number: 40571 Facility: SUSQUEHANNA
Region: 1 State: PA Unit: [1] [2] [ ]
NRC Notified By: GRANT FERNSIER
HQ OPS Officer: RICH LAURA Notification Date: 03/06/2004
Notification Time: 08:20 [ET] Event Date: 03/06/2004
Event Time: 05:28 [EST] Last Update Date: 03/06/2004
Emergency Class: NON EMERGENCY
OFFSITE NOTIFICATION Person (Organization):
MOHAMED SHANBAKY (R1)
U n i t SCRAM Code RX CRIT Initial PWR Initial RX Mode Current PWR Current RX Mode
1 N N 0 Re fue l ing 0 Re fue l ing
2 N Y 1 0 0 Power Operation 1 0 0 Power Operation

AREVA Awarded Contract to Supply Fuel for PPL Susquehanna
3/8/2004 Bethesda, Md. -- AREVA`s joint subsidiary with Siemens, Framatome ANP, has been awarded a contract to supply six batches of nuclear fuel for PPL`s Susquehanna nuclear power plant. Delivery of the first reload under this contract will be in early 2005.AREVA will supply its ATRIUM™ 10 boiling water reactor (BWR) fuel

assemblies for Susquehanna units 1 and 2. The fuel will be manufactured at AREVA`s nuclear fuel manufacturing facility in Richland, Washington. Since 1992, more than 2,900 ATRIUM™ 10 fuel assemblies have been installed in 17 reactors worldwide.
"We have enjoyed a longstanding relationship with PPL Susquehanna," said John Matheson, AREVA senior vice president, nuclear fuels. "We are pleased to have this opportunity to further support PPL`s generation goals by providing high-quality fuel that is capable of meeting the highest demands for performance and reliability." (Press Release).

Event Text
OFFSITE NOTIFICATION AT SUSQUEHANNA INVOLVING
A TRAFFIC ACCIDENT
"On 3/06/04 at 0528 Plant Security was notified of an accident at the entrance to the site involving an employee leaving work and a south bound vehicle on PA Route 11. There were no reported injuries. Local law enforcement was contacted and investigated the incident. Because of the involvement of a LLEA and potential media or general public interest in the event, the Pennsylvania Emergency Management Agency (PEMA) was notified of the incident at 0812 hours. Based on the notification to a government agency and possible public interest, this event was determined to be reportable under 10CFR50.72(b)(2)(xi)."
The NRC Resident Inspector was notified.
(See January 14, 2004, for a similar accident.)Power Reactor Event Number: 40602
Facility: SUSQUEHANNA
Region: 1 State: PA Unit: [1] [2] [ ] RX Type: [1] GE-4,[2] GE-4
NRC Notified By: RONALD FRY HQ OPS Officer: CHAUNCEY GOULD
Notification Date: 03/21/2004 Notification Time: 16:03 [ET] Event Date:

March 24, 2004
Event Time: 12:32 [EST] Last Update Date: 03/21/2004
Emergency Class: NON EMERGENCY 10 CFR Section:
INFORMATION ONLY Person (Organization): HAROLD GRAY (R1)
U n i t SCRAM Code RX CRIT Initial PWR Initial RX Mode Current PWR Current RX Mode
1 N N 0 Re fue l ing 0 Re fue l ing
2 N Y 1 0 0 Power Operation 1 0 0 Power Operation
Event Text
THREE INJURED NONCONTAMINATED CONTRACTORS WERE TRANSPORTED
TO THE HOSPITAL.
"On 3/21/04 at 12:32 hrs a bucket truck working at the Unit 1 Cooling Tower came in contact with a 230KV transmission line causing the loss of one off site power supply to the plant. The 500 KV offsite circuit remained energized during the event. A contract employee at the base of the truck was thrown due to the electrical short. A contract employee in the

bucket of the truck was able to lower the bucket to the ground. A first aid crew was dispatched to the location and an Ambulance was requested. The Ambulance entered the site at 12:50 and at 13:02 the individuals were transported to the local hospital. Due to the electrical transient in the plant, a contract employee performing grinding activities lost control of the grinder and injured his middle finger. This individual received first aid and was transported to the local hospital by his supervisor. The individual injured in the plant was surveyed by Health Physics prior to leaving the site and no contamination was found. The Local Law Enforcement Agency was notified of the Emergency vehicle being dispatched to the site. The State Emergency Operations Center will be notified of the Emergency vehicle entering the site."
The NRC Resident Inspector and local agencies were notified and the state will be notified.
Power Reactor Event Number: 40605 Facility: SUSQUEHANNA
Region: 1 State: PA Unit: [1] [ ] [ ] RX Type: [1] GE-4,[2] GE-4
NRC Notified By: GRANT FERNSLER
HQ OPS Officer: STEVE SANDIN Notification Date: 03/23/2004
Notification Time: 11:00 [ET] Event Date: 03/23/2004
Event Time: 07:46 [EST] Last Update Date: 03/23/2004
Emergency Class: NON EMERGENCY 10 CFR Section:
50.72(b)(3)(ii)(A) - DEGRADED CONDITION Person (Organization):
FRANK COSTELLO (R1)
Unit SCRAM Code RX CRIT Initial PWR Initial RX Mode
Current PWR Current RX Mode
1 N N 0 Refueling 0 Refueling
Event Text
INDICATION OF CRACK FAILURE ON RCS PRESSURE BOUNDARY PENETRATION
"Unit 1 is currently in a refueling outage in Mode 5. During a routine inservice inspection of the reactor vessel, an indication was discovered on the N1B penetration. This is associated with the suction for B Loop of Reactor Recirculation. At 0746 on 3/23/2004, the Control Room was notified that the evaluation was completed and the indication was determined to be unacceptable under the ASME Section XI Code. Based on guidance provided in NUREG-1022, Rev. 2, this material defect in the primary coolant boundary constitutes a seriously degraded condition and is reportable under 10CFR50.72(b)(3)(ii)(A). A final evaluation of the flaw and a repair plan is being developed."
The licensee informed the NRC Resident Inspector.
PRN: PPL's Susquehanna Nuclear Power Plant Returns to Normal Operation Small Flaw Found in Pipe at PPL Nuclear Site in Luzerne County, Pa.
Publication: Knight Ridder/Tribune Business News

March 25 2004- By Sam Kennedy, The Morning Call, Allentown, Pa. Knight

Ridder/Tribune Business News
Mar. 25--A crack was discovered in a pipe during a routine inspection of the Susquehanna nuclear power plant, PPL Corp. announced Wednesday. The defect posed no immediate threat to the public, according to PPL, which operates the plant. Risk of rupture within the Unit 1 reactor was not significant because the crack was so small, a company spokesman said. "This was nowhere near a break," Herb Woodeshick said. He likened the crack, found Tuesday, to a "blemish.

April 28, 2004 - BERWICK, Pa., /PRNewswire-FirstCall/ -- PPL's Susquehanna nuclear power plant in Luzerne County declared an end to an "unusual event" at 3:52 p.m. EDT on Wednesday (4/28), and plant operators have begun to return the Unit 2 reactor to full power.

The plant entered the lowest of the four emergency classifications for nuclear power plants at 1:25 p.m. EDT Wednesday because of an electrical failure in a power distribution panel located in the Unit 2 reactor building. As a result, the unit's power was reduced to about 80 percent.

"Plant equipment and personnel reacted as expected for this type of situation," said Herbert D. Woodeshick, special assistant to the president for PPL Susquehanna. "Workers isolated the electrical failure and restored power to the affected systems through an alternate electrical supply." The damaged distribution panel supplied power to the cooling system for the main generator and to the system that removes certain gases from the turbine's main condenser, without which the unit cannot operate at full power.

"The plant was in a stable condition throughout the event, and Unit 1 remains at full power," Woodeshick said.

Unit 2 now has been operating for 374 consecutive days.

PPL notified Luzerne and Columbia county emergency management agencies, the Pennsylvania Emergency Management Agency and the Nuclear Regulatory Commission.

The Susquehanna plant, located about seven miles north of Berwick, is owned jointly by PPL Susquehanna LLC and Allegheny Electric Cooperative Inc. and is operated by PPL Susquehanna.

PPL Susquehanna LLC is a member of the PPL Corporation family of companies. Headquartered in Allentown, Pa., PPL Corporation.

(Please reference the following dates for a list of chronic electrical problems at the SSES: “1986”; September, 1988; February 6, 1990; July 23, 1997; June 8-16, 1999; and, April 12, 2005.)
Power Reactor Event Number: 40777
Facility: SUSQUEHANNA
Notification Date: 05/26/2004
Event Text OFF SITE NOTIFICATION
"This event is being reported under 10CFR50.72(b)(2)(xi) as an item of public interest and an event for which other government agencies have been

notified. "At 1600 on 5/26/2004, the operations Shift Manager was notified by the Security Shift Supervisor that an individual [truck driver] had been arraigned by a LLEA [Local Law Enforcement Agency] judge for prohibited items (drug paraphernalia) which were discovered during a routine entrance search of personnel and vehicles. The items were discovered outside the protected area [and] were determined to not pose a threat or attempted threat. The LLEA was called and responded to the site access area and removed the individual to the local barracks, where he was subsequently arraigned on a misdemeanor. The individual's name has been removed from the Susquehanna LLC visitors list. "The Manager of Nuclear Security briefed NRC Region #1 Inspector, Dana Caran, concerning the incident."

The licensee notified the NRC Resident Inspector.

Citizens Voice: 5 detained near Salem nuclear plant

Wednesday 30 June, 2004

by Heidi E. Ruckno Citizens' Voice Staff Writer

Federal and state authorities reported Tuesday that several men of Middle Eastern descent were driving around the Berwick and Shickshinny areas Tuesday looking for the nuclear power plant in Salem Township.

The five men, four from Bangladesh and another of Pakistani descent, were reportedly seen at the Delaware Water Gap rest area along Interstate 80 around 8:20 a.m. They were also spotted in Bloomsburg, Columbia County. State police said they were asking directions to the river near the plant because they wanted to go fishing. Their minivan was pulled over by state police in Shickshinny around 11 a.m. on U.S. Route 11 in Salem Township, four miles south of the Susquehanna Steam and Electric Power Plant.

According to federal and state authorities, the Federal Bureau of Investigation was notified. Because of visa issues, two of the five men were detained by immigration authorities.

"We did stop and detain five individuals, who were believed to be of Middle Eastern descent, because of suspicious activity," FBI special agent Jerri Williams said. Their van was searched Tuesday and authorities did not find anything i l l e g a l .

All five men were released Tuesday evening. Williams said Tuesday that there was no cause for alarm, as authorities did not find any links to terrorist activity.

Both the Luzerne County Emergency Management Agency and power plant security were notified about the incident. When asked if the power plant had taken any special precautions, EMA operations and training officer Steve Bekanich said he couldn't speak for the plant.

Power plant spokesperson Joseph Scopelliti said he knew of no procedural changes resulting from the incident. "I know of nothing different," Scopelliti said. "I've seen state police vehicles up and down the highway, but that's every day. We were made aware by state police that there was a concern."

According to Scopelliti, security at the plant is normally very tight. He

said that every employee must have proper identification or they will not be allowed on the grounds, and that all unknown people and vehicles and are searched and X-rayed.
"We're ready 24-7," Scopelliti said. "We're not sitting back waiting for something. Everyone that comes up here must have a business reason to come up."

July 2, 2004:
GOVERNOR RENDELL ANNOUNCES ENHANCED
SECURITY MEASURES AT NUCLEAR POWER PLANTS
National Guard, State Police to Provide a 24-hour Presence and
Random, Unannounced Patrols During Independence Day Holiday

HARRI SBURG: Governor Edward G. Rendell today said the Pennsylvania National Guard and the Pennsylvania State Police will provide both a 24-hour presence and random, unannounced security patrols at the Commonwealth's five nuclear power plants. The enhanced security measures will be provided in a coordinated fashion with the plant operators and their security teams, and will remain in force at least through the conclusion of the Independence Day holiday.
"My Homeland Security Team continues to coordinate on a regular basis with the U.S. Department of Homeland Security, the Federal Bureau of Investigation, the U.S. Department of Defense, and the Nuclear Regulatory Commission in order to discuss and share relevant intelligence information and threat analysis," Governor Rendell said."Although there currently exists no credible threat against any
Pennsylvania nuclear power facility, in an abundance of caution I have asked the National Guard and State Police to immediately commence enhanced security measures at our nuclear power stations. At a minimum, we will maintain this deployment status through the holiday weekend."
The state's nuclear power plants are Beaver Valley in Shippingport Borough, Beaver County; Susquehanna in Salem Township, Luzerne County; Limerick in Limerick Township, Montgomery County; Peach Bottom in Delta Borough, York County; and Three Mile Island in Londonderry Township, Dauphin County.

Power Reactor Event Number: 40196 Facility: SUSQUEHANNA

September 12, 2004 -State plan to handle nuke crisis challenged
Preschools, hospitals and nursing homes are unprepared,
2 residents say
BY GARRY LENTON Of The Patriot-News
State and federal authorities are investigating allegations that Pennsylvania is unprepared to evacuate preschool children and nursing home and hospital patients during a nuclear accident.
The federal government requires that the state have a plan for moving

people who cannot care for themselves and live within 10 miles of a nuclear plant. Two Harrisburg area residents allege that the state has been out of compliance with federal safety requirements for nearly two decades.
Gov. Ed Rendell's office and the Federal Emergency Management Agency took on the review of the state's plan after receiving a letter last week from Larry Christian and Eric Epstein, chairman of the watchdog group Three Mile Island Alert, detailing these issues. The Nuclear Regulatory Commission also received the letter.
If the accusations are deemed true, it would call into question the validity of the operating licenses for the five nuclear power stations in Pennsylvania. Federal law requires the NRC to determine that the public will be protected in a radiological emergency before it grants a license to open a nuclear plant.

December 21, 2004- Citing rate hikes that take effect Jan. 1 in Pennsylvania, PPL Corp. expects to boost its 2005 earnings from current operations by about 8 percent, the company said Monday.The Allentown-based utility is forecasting earnings of $3.80 to $4.20 per share, up from a projected $3.65 to $3.85 per share this year.The rate hikes, approved by the state Public Utility Commission, affect 1.3 million electricity customers in central and eastern Pennsylvania.

Jan. 20, 2005- Susquehanna set plant record by generating 18-million MWH

Susquehanna's two units generated a record combined output of 18.03-million megawatt-hours (MWH) last year, besting 2003's output of 18-million MWH, PPL Corp. said this week.
Susquehanna-2 also set a site generation record, producing 10.03-million MWH, said PPL spokeswoman Constance Walker. The old record for unit 2 was 9.347-million MWH in 2000, Walker said.
Unit 1 generated 8-million MWH, short of its 2001 record of 9.413-million MWH, Walker said.
PPL said one factor in the record station generation was the installation of new turbines on unit 1 during its spring refueling outage ast year. Unit 2 received a similar upgrade in 2003.
Both units are operated by PPL subsidiary PPL Susquehanna. Unit 1 is a 1,142-MW BWR; unit 2 is a 1,147-MW BWR.
—Report by Daniel Horner

Feb. 11, 2005- Nuclear plant guard rule could be year away
TMI watchdog group decries 'glacier' pace

The Harrisburg-based nuclear watchdog group Three Mile Island Alert has been waiting since Sept. 12, 2001, for the U.S. Nuclear Regulatory Commission to decide whether nuclear plant owners must post armed guards at their front gates.
TMIA will have to wait another year for its answer, according to an NRC memo released to Wednesday. The memo outlines a schedule the NRC plans to follow as it considers rule changes for security at the nation's 63 nuclear power stations.

The memo, from Luis A. Reyes, executive director for operations, anticipates that recommendations that could mandate guards at plant entrances will be presented to the commissioners next February.
If the NRC adheres to the schedule, the recommendation would come nearly five years after TMIA petitioned the agency for the change.
A statement issued by the watchdog group yesterday called the NRC's failure to act on its request irresponsible and unreasonable. "For nearly four and a half years the NRC has misled [TMIA] about its deliberations on the petition," the statement said. "When requesting status updates, the NRC perpetually stated that a decision on the petition would be made within three to six months."
TMIA asked the NRC to require plant operators to keep at least one armed guard at each plant entrance. The petition, which was drafted weeks before the terror attacks of 9/11, argued that the guards would serve as a physical and visual deterrent against attacks.

Since 9/11, the NRC has issued security requirements aimed at making the plants less vulnerable to attack. Changes include the addition of guard towers, truck barriers, deeper background checks and high-tech fencing. Most, if not all, plant owners post guards at their front gates.
For months after the terror attacks, Pennsylvania was among several states to assigned National Guard troops to the plants. NRC officials have denied allegations of foot dragging. Petitions such as TMIA's, which require rule changes, take a long time to complete, officials said.
The Nuclear Energy Institute, which represents plant owners and operators, opposes the petition. It told the NRC that guards should be posted only when the level of security threat makes it prudent.
On July 29, 2005, the NRC a issued White Violation relating to another staffing deficiency at Three Mile Island where “approximately 50% of the emergency responders,” including “key responders” were “overdue” for their annual training for “an approximate five month period. (Please refer to Thursday, July 14, 2005, for background material).
-Report by Garry Lenton of the Patriot-News

March 4, 2005- 'Unusual event' declared. No fire found and no one is hurt

Smoke at PPL Corp.'s Susquehanna nuclear power plant led to a
low-level emergency declaration on Friday afternoon.
Crews detected smoke in a construction area at one of the Luzerne
County facility's two nuclear units. The unit was out of service
for refueling.
As a result, an "unusual event" was declared for about 55
minutes.
An unusual event is the lowest of the four emergency classifications established by the U.S. Nuclear Regulatory Commission for nuclear power plants. "Our plant fire brigade responded and no fire was found. The

smoke has stopped," said Joe Scopelliti, spokesman for the Susquehanna plant. "There were no injuries. We are investigating the cause. No action by the general public was required."
Unit 2 had been shut down since Feb. 26 for a refueling and inspection outage.
The smoke was detected at 2:57 p.m. in a construction area near a
moisture separator, which is used to "dry" the steam heading for the turbines.
-By Sam Kennedy of The Morning Call

March 6, 2005 -Post-accident monitoring instrument inoperable

Susquehanna Steam Electric Station informed the NRC today by fax that: "At (3 p.m.) on March 6, 2005, the Control Room declared both required divisions for three functions (Primary Containment Pressure, Primary Containment Hydrogen and Oxygen Analyzer, and Drywell Atmosphere Temperature) of Post Accident Monitoring Instrumentation (a Safety System) inoperable. The control room was notified of 'Non Quality' (non-Q) parts installed in both required divisions of a Post Accident Monitoring Instrumentation Recorder. The appropriate LCO Conditions were entered for one or more functions with two required channels inoperable. This equipment has passed all surveillance requirements and has been functional since installation," the statement said.
"Plans are being developed to replace the non-qualified parts.
"This is being reported as an event or condition that could have prevented fulfillment of a safety function required to mitigate the consequences of an accident in accordance with 10CFR50.72(b)(3)(v)(D)."
The NRC Resident Inspector was notified.

April 12, 2005 - Berwick plant shut down

“PPL Corp. officials shut down the Unit 2 reactor at Susquehanna
nuclear power plant in Luzerne County Sunday to repair a battery
charger that is part of the site's electrical system. The plant's Unit 1 reactor continued to operate at 100 percent power.”
“Allegheny Electric Cooperative and PPL Susquehanna jointly own the two-unit nuclear power plant, which has a 2,352-megawatt generating capacity.
-Report by the York Daily Record

April 14, 2005- Nuclear reactor restarted

“Operators safely restarted the Unit 2 reactor at the Susquehanna
nuclear power plant in Berwick Wednesday after completing electrical repairs to the unit's battery chargers. The battery chargers are part of the plant's electrical system and are located in a non-nuclear area of the plant.”
“On Sunday, plant workers had discovered one of the unit's four chargers was not working properly. Because crews could not repair the electrical problem and conduct a thorough investigation of the Unit 2 direct current electrical system within a specified time period, they manually shut down the unit

as called for in plant procedures."
Susquehanna-2 was out of service this week as plant personnel repaired a battery charger and checked similar components in the 1,147-MW BWR, operator PPL Susquehanna said.
An "expert team" determined that two embrittled wires near a resistor came into contact with each other, creating a short circuit that caused three fuses in the charger to fail April 10, PPL spokesman Lou Ramos said. The charger provides a back-up power source for pump breakers, isolation valves, and other components, he said.

PPL found three similar chargers elsewhere in the reactor and now has configured them to make sure they won't have the same problem, he said. When PPL has collected and analyzed information from the repair and inspection, the company "probably will put something out to industry," as other plants probably have similar battery chargers, he said.
- Report from Nucleonics Week / Volume 7/ Issue 15 / April 14, 2005 and *t*he York Daily Record

April 29, 2005 -Troubled Reactor Shutdown Again Due to Electric Problems*

On Thursday, April 28 at 7:19 a.m. , PPL shut down the Unit 2 nuclear reactor for the second time in a month due a malfunction with a plant electrical transformer.
The main transformer is a non-nuclear component of the plant that increases the voltage of the electricity for distribution on the electrical transmission network. The malfunction appears to be related to the cooling system for the transformer.
Unit-2 was still shut down on April 29.

April 30, 2005 - PPL Susquehanna Restarts Unit 2 Reactor

Operators reported safely restarting the Unit 2 reactor at the Susquehanna nuclear power plant and reconnecting to the electrical transmission network Saturday, April 30 after repairing the cooling system on the unit's main transformer.
A worn motor for one of the transformer's cooling system fans caused the unit to be shut down Thursday morning, plant officials reported.
-Report by Marlene Lang

June 6, 2005 - Third forced closure since April 14, 2005

Unit 2 of PPL's Susquehanna nuclear power plant shut down automatically at 12:33 p.m. Monday, June 6 because of a problem with the electric transmission network.
-PRNewswire report

June 11, 2005 - Unit 2 at the Susquehanna nuclear power plant resumed generating electricity Saturday June 11.
The unit shut down automatically five days earlier after an electrical generator component - a voltage regulator - failed. Plant crews have replaced the regulator and have completed thorough inspections to ensure that the unit's electrical systems are operating properly.
-PRNewswire report

July 25, 2005- PPL Pa. Susquehanna 1 nuke dips to 73 pct power

PPL Corp.'s 1,140-megawatt Unit 1 reactor at the Susquehanna nuclear power station in Pennsylvania dipped to 73 percent of capacity by early Monday, the U.S. Nuclear Regulatory Commission said in a report.
On Friday, the unit was operating at full power.
Power was reduced throughout the weekend to replace feed water valves. PPL began a return to full power on
-Report by Rueters

Sept. 27, 2005- GE receives contract to increase output of PPL nuclear units

A General Electric Co. subsidiary said Sept. 22 that it won a $10 million contract to increase the electric gen-erating capacity of PPL Corp.'s two-unit Susquehanna nuclear plant by about 200 MW combined. This is part of an extended power uprate for the boiling water reactor units at the nuclear plant, near Berwick,
Pa. PPL Corp. currently lists a generating capacity of 2,360
MW for the facility plant. PPL Corp.'s PPL Susquehanna unit is 90% owner of
the nuclear plant. Allegheny Electric Coop. Inc. is a 10% owner. Unit 1 began commercial operation in 1983 and unit 2 in 1985. PPL Corp. will likely file for a 20-year oper-ating license renewal for both units next year.
GE Energy, the plant's original equipment manufac-turer, will work with PPL Corp. to prepare for the uprate, which will be implemented in phases during several refu-eling outages.
GE Energy will perform the engineering analysis and provide documentation support for the uprate as well as the generator scope of work. A combination of GE, PPL Susquehanna and other subcontractors hired by PPL Corp. will perform the balance of the plant work.

-Report by Wayne Barber

Oct. 29, 2005 - Friction in fuel assemblies, control rods shuts down plant

One of the reactors at the Susquehanna nuclear power plant near
Berwick will shut down late Friday for maintenance and should be generating power again within three weeks, PPL Corp. said Wednesday.
Routine testing showed that some of the control rods and fuel assemblies on the Unit 1 reactor are experiencing increased friction, slowing their response time, the company said. The Unit 2 reactor is expected to continue operating normally.
-Report by York Daily Record/Sunday News

March 14, 2006 - Proposed Spent Fuel Exemption for the Susquehanna Nuclear Generating Station Challenged

Eric. J. Epstein, chairman of Three Mile Island Alert, told the NRC why he was concerned about PPL's request to exempt fuel casks, allowing storage of spent fuel. Here is his statement to the Nuclear Regulatory Commission:

Thanks for the opportunity to offer input and share my concerns on PPL's spent fuel cask exemption request.
On April 16, 2003 at the Nuclear Regulatory Commission's (NRC) annual RIC workshop in Rockville, Bryce Shriver from PPL gave a presentation on Safety Management: An Integrated Approach. Among the key areas he touched upon were "Work Management," "Operational Decision Making," "Design and Licensing Basis Control," and "Business Planning and Budgeting". He emphasized that PPL's processes together with their "Independent Oversight" and "Culture" would produce "Safety Performance."
This approach seemed to make sense as PPL prepared for relicensing and power uprates:
• The Company has contracted with GE Energy to prepare for additional uprates, i.e., Susquehanna 2 (1994) and Susquehanna 1 (1995) had 4.5% bumps. The 200 MWe uprates are scheduled to be implemented in phases during several refueling outages.
• Susquehanna Steam Electric Station, Units 1 and 2 are currently preparing for a license extension applications estimated to be somewhere from July- September 2006.
What went wrong?
It appears PPL has poorly managed human and technical resources to complete projects.
***Background**: PPL submitted a request for an exemption that would enable the plant to begin loading Framatome 9x9-2 spent fuel into the Nuhoms 61BT storage system.*
The Company is not presently authorized to store the fuel.
***Statement of concern**: This "precedent" (1) would bypasses normal review and approval processes for cask loading and penalize plants like Peach Bottom that have followed the NRC's procedures and protocol.*
In my opinion, granting the exemption would weaken the NRC's regulatory protocol of firm, fair and consistent oversight.
***Background**: Normally, the NRC reviews exemption requests for changes the staff has already reviewed as part of an amendment to a cask certificate of compliance (COC).*
Such exemptions allow the utility to begin cask-loading before NRC completes its rulemaking process to formalize the amendment is complete.

Statement of concern: *However, Transnuclear* ***has not yet submitted*** *the amendment request to make the change PPL needs. Any exemption would force the NRC to prematurely approve the cask to relieve a self-imposed economic hardship. There is a reason the Agency prides itself on a rigorous oversight process.*

PENNSYLVANIA PUBLIC UTILITY COMMISSION, A-00110550F014, OPINION AND ORDER, "Thus, PPL states that the Recommended Decision failed to address the distinction between the use of the settlement as "binding precedent" and itsadmissibility as evidence in future proceedings..."

Background*: PPL claims the exemption is necessary because the plant will lose full-core offload capability in December, 2006 when it receives and begins to stage new fuel for Unit 2's 2007 refueling outage. Susquehanna had originally scheduled cask-loading to begin in October, 2006. However, because of recent fuel channel performance problems at Unit 1, PPL expects Unit 2 will have to undergo a mid-cycle maintenance outage to inspect and replace any bowed fuel channels. That would limit space available in the pool, requiring the plant to accelerate its loading plans.*
Statement of concern*: An exemption would reward poor planning (2) of a utility that owns and operates one plant vs. AmerGen and Exelon that own and operate three plants in the state. (3)*

Reactor	***Core Size***	***Lose Full Core Off load Capability***
Limerick 1	**764**	**2006**
Limerick 2	**764**	**2006**
Oyster Creek	**560**	**LOST**
Peach Bottom 2	**764**	**2000**
Peach Bottom 3	**764**	**2001**
Salem 1	**183**	**2012**
Salem 2	**193**	**2018**
Three Mile Island	**177**	**NA**

Station	***Dry Cask Technology***	***Deployment Date***	***Contractor***
Limerick	**BD**	**Summer 2010**	**TBD**
Oyster Creek	**NUHOMS 52B** (4)	**July, 2010**	**None**
Peach Bottom	**Trans-Nuclear TN-68**	**June, 2000**	**Raytheon**

I am asking the NRC deny the exemption and preserve a fair and level regulatory playing field.

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1 Please note that PPL opposed the merger of Come Ed and PECO based on one principal: "precedent."

2 Poor resource planning by a Company headed by a systems manager, i.e., William F. Hecht, warrants an independent NRC evaluation, e.g., Augmented

Inspection Team.
3 PENNSYLVANIA PUBLIC UTILITY COMMISSION, PECO's Response to Eric Epstein's Informal I-8.
4 Holtec has been chosen by AmerGen to provide dry cask services at Oyster Creek.

Feb. 28, 2006 -NRC examing TMI security

The U.S. Nuclear Regulatory Commission plans to investigate the management of the security force at Three Mile Island, focusing on fitness-for-duty issues such as fatigue and sleeping on the job.
The probe, announced in a certified letter delivered to a Patriot-News reporter, was prompted by a story published Jan. 29.
The story reported on a memo in which John Young, head of the Wackenhut security, scolded security supervisors for failing to note that veteran officers were telling new hires safe places to sleep undetected while on duty. Wackenhut is a private security firm hired by plant owner Exelon Nuclear to guard the nuclear station.
The memo also said officers were telling new hires ways to short-cut patrol duties.
Of additional concern to the NRC were reports that security officers were being allowed to work excessive hours. The newspaper documented one person who worked more than 150 hours during a 14-day period, and averaged more than 54 hours a week for more than 10 months.
Since March 2004, AmerGen Energy, the operator of TMI, investigated and disciplined five workers for "inattentiveness to duty." The phrase is used by the industry and regulators to cover an array of conditions, including sleeping. Three of those workers were security officers.
Guards, speaking on the condition of anonymity, said fatigue from long hours and boredom were to blame for the inattentiveness.
Guards work 12-hour shifts at TMI. Federal regulations limit those hours to 16 out of 24; 26 hours out of 48; and 72 out of seven days.
The agency said it will not announce the findings of the probe.
"Due to the nature of the security-related issues ... we are not providing you with further information on this matter," wrote David J. Vito, senior allegation coordinator for the NRC.
-Report by Garry Lenton of the Patriot-News

March 1, 2006- Drop-in inspections planned by state

Prompted by reports of sleeping or inattentive employees at Three Mile Island, the state said it will conduct surprise inspections at least twice a month at Pennsylvania's five nuclear power plants.
The first round of inspections last month found no instances of inattentiveness on the part of control roomoperators or plant security, Gov. Ed Rendell said yesterday.

The state Department of Environmental Protection will continue the inspections through the end of the year. Then the DEP will decide whether to continue the practice, said Ronald Ruman, a department spokesman.

The inspections came shortly after The Patriot-News reported on five cases of inattentiveness at TMI that occurred since March 2004.
Report by Garry Lenton of the Patriot-News

March 3, 2006 - Alert Declared at nuclear power plant in Luzerne County

Pennsylvania Emergency Management Director James R. Joseph announced that an ALERT was declared Wednesday night at the Susquehanna Steam Electric Station in Salem Township, Luzerne County. This action was necessary due to the activation of the fire suppression system in the Security Control Center. Plant operations have not been impacted and the plant fire brigade is investigating.
"No one has been injured and there was no non-routine release of radioactive material," said Joseph. "The plant continues at normal operation, but the ALERT could last several hours overnight."
"An Alert is the second-lowest of four emergency classifications for nuclear power plants. It is declared when an event has occurred that could reduce the plant's level of safety, but backup plant systems still work," said Joseph.
Preparedness for commercial nuclear power plants includes a system for notifying the public if a problem occurs at a plant. The emergency classification level of the problem is defined by four categories: Unusual Event, Alert, Site Area Emergency and General Emergency. Listed in order of increasing severity.
Pennsylvania Power Light, which operates the Susquehanna Steam Electric Station declared the ALERT at 9:27 p.m.
The State's Emergency Operations Center (EOC) in Harrisburg was partially activated to monitor the situation. Representatives from the state Departments of Agriculture, Corrections, Education, Environmental Protection, General Services, Health, Public Welfare and Transportation, the Office of Administration, the Department of Military and Veterans Affairs, the Pennsylvania Turnpike Commission, the Pennsylvania State Police, the Fish and Boat Commission, the Public Utility Commission and the American Red Cross joined staff from PEMA in the EOC. At no time during the incident was there a need to issue protective action recommendations to the public.
-Report by the Daily Item, Sunbury, Pa.

April 11, 2006 - NRC grants Susquehanna exemption for spent fuel storage

NRC's Spent Fuel Project Office (SFPO) granted an exemption April 11 to PPL Susquehanna, allowing the utility to load a previously unapproved fuel assembly design into Transnuclear Inc.'s Nuhoms-61BT spent fuel storage system. NRC has exempted the plant from Part 72 requirements that a licensee use systems that NRC approved for use under a general license.
The exemption will allow Susquehanna to start loading Framatome ANP 9x9-2 spent fuel containing 79 full fuel rods and no partial fuel rods. The certificate of compliance (COC) for the Nuhoms-61BT system currently allows the loading of GE 9x9-2 rods or their equivalent with 66 full rods and eight partial rods. Susquehanna has committed to loading fuel with maximum decay heat below 210 watts per assembly, lower than the COC's 300-watt limit. The fuel parameters are generally bounded by the existing COC.

PPL spokesman Joe Scopelliti said the plant will begin moving the spent fuel into dry storage next month. Susquehanna will lose full-core offload capability in December when it begins to stage fuel for Unit 2's refueling outage next spring. The start date for the loading campaign had to be pushed forward from October 2006 because of a possible outage this summer to inspect fuel channels and replace any that show signs of bowing. The spent fuel pool will be needed to store any bowed channels that are removed and must be cleaned out before that activity begins.

But NRC staff rejected PPL's suggestion that the exemption remain in effect until either the completion of its planned 2008 loading campaign or 60 days after NRC grants amendment 9 to the Nuhoms-61BT system, which would add the Framatome fuel to the system's approved contents.

Instead, NRC limited the exemption to the loading of the five casks that PPL said were needed to preserve full-core offload capability through summer 2007. "The staff believes that the use of exemptions in regulatory activities should be minimized," SFPO Deputy Director William Ruland said in an April 11 letter granting the exemption. He added that normal processes for amending COCs should be followed "whenever possible." The NRC believes TN could submit a focused amendment in the near term to allow the Framatome fuel to be added to the approved contents, Ruland said. The cask vendor is scheduled to submit amendment 9 to NRC this month.

In a separate letter April 12, Ruland notified TMI-Alert Chairman Eric Epstein that NRC did not agree with his request to deny the exemption. Epstein asserted in a March 14 teleconference that granting the exemption "would reward poor planning," something that he said "warrants an independent NRC evaluation."

Ruland emphasized that NRC regulations permit licensees to seek exemptions in special circumstances, so long as the exemption "is authorized by law and would not endanger life or property or the common defense and security and is otherwise in the public interest." He said the limitation on the number of casks loaded under the exemption should "enable PPL to avoid the need for further exemptions" for dry storage.

May 1, 2006 - Plant shuts due to leak

PPL Corp. shut the 1,140-megawatt Unit 2 at the Susquehanna nuclear power station in Pennsylvania on April 29 to repair a water leak, the company said in a release.

"The leak is minor – significantly less than the amount that would require us to shut down for repairs according to the plant's operating procedures -- and it does not affect our ability to operate safely," Robert Saccone, vice president of

Nuclear Operations for PPL Susquehanna, said in the release.

"We made the proactive decision to find and fix the leak now, so that we don't run the risk of having to shut down the unit during the summer if the leak gets worse. In the summer months, the regional power grid, consumers and PPL count on Susquehanna to provide reliable power as electricity use increases," Mr. Saccone added.

PPL said it planned additional maintenance in other areas of the plant during this short outage that will help maintain the reliability of the unit, which was in service for 322 consecutive days before this shutdown.

The unit was operating at full power early Friday.

The 2,245 MW Susquehanna station is located in Berwick in Columbia County, about 125 miles northwest of Philadelphia.
There are two units at the station, the 1,135 MW unit 1 and the 1,140 MW unit 2.
-Report from NuclearFuel Volume 31 / Number 9 / April 24, 2006

June 15, 2006 - Monitoring system trips shutdown at Unit 1

At 3 a.m. on June 15, the Susquehanna Unit 1 reactor automatically "scrammed due to an apparent neutron monitoring trip while transferring Reactor Protection System power supplies," company documents stated.
A "scram" means a shutdown in nuclear industry lingo.
"All rods [fully] inserted, and both reactor recirculation pumps tripped," according to the report, which explained, reactor water level lowered to -38" causing level 3 (+13") and level 2 (-38")isolations, and was restored to normal level (+35") ... and subsequently the feedwater system. All isolations at this level occurred as expected. No steam relief valves opened. Pressure was controlled via turbine bypass valve operation. All safety systems operated as expected."
A reactor recirculation pump was restarted to re-establish forced core circulation. The reactor is currently stable in condition 3. An investigation into the cause of the shutdown is underway. Unit 2 continued power operation, according to the report.
The NRC resident inspectors were notified, the company stated.
-Report by Marlene Lang

Sept. 6, 2006- Shipment to plant had radiation reading at 4 times allowed level

A container shipped from Vermont Yankee on Aug. 31 ended up at its destination later that night with radiation readings four times higher than those allowable under federal law, according to a report filed Sept. 1 with the Nuclear Regulatory Commission (NRC).
The shipment, a box measuring 6x7x8 feet containing a machine used to configure fuel rods in the power plant's spent fuel pool, registered no more than 60 millirem per hour before it left Vermont, according to Vermont Yankee (VY) records. That level is well below the federal Department of Transportation's (DOT) 200 millirem hourly contact exposure limit.
However, when it arrived at the Susquehanna reactor in Berwick, Pa., the bottom of the container registered 820 millirem per hour, more than four times the DOT limit.
The container was shipped on a flatbed truck by a private contractor Hittman Transport Services of Barnwell, SC. As of Tuesday the container remained closed in a controlled area at the Susquehanna plant, while inspectors made special preparations before opening it, according to NRC spokesman Neil Sheehan.
He said they planned to open the container Wednesday.
En route to its destination, the truck stopped at rest stops on the westbound side of the Massachusetts Turnpike and on southbound Interstate 87 after existing Interstate 90,

according to an incident report filed by Susquehanna officials, who were required to make a report to the NRC because of the high radiation recording.

No one to the knowledge of the driver came in contact with the shipment, the report states. The truck arrived at Susquehanna at 8:45 p.m. and the driver, who was wearing a radiation detection monitor, slept in the vehicle. Sheehan said the driver's dosimeter showed readings well within acceptable levels.

A spokeswoman for the trucking company said she had no knowledge of the incident.

According to the NRC report, the shipment was formally received at the Susquehanna facility at 8:05 a.m. the next morning. The high reading was recorded at 11:15 a.m., and Susquehanna officials notified the NRC at 12:15 p.m.

According to the report, the shipment showed no signs of surface contamination, and it exceeded the dose rate limit only on the bottom of the container once it was lifted off the truck.¿ "Doses under the trailer prior to lifting the shipment did not exceed the limit," the report states.

Unless someone got right up under it, the probability that someone would have received any kind of exposure from that configuration is low, said NRC Region I deputy administrator Mark Depas.

VY spokesman Rob Williams also emphasized that point: Despite the unexplained high radiation levels, the shipment represented no threat to public health and safety in transit because the radioactive side was against the bed of the truck, which provided additional protection, he said.¿

At no time during the shipment was there any additional exposure to anyone because the flatbed truck provided adequate shielding, Williams said. "In fact, the radiation level in question was detected only at the bottom of the package, and only after it was lifted off the flatbed, so this had no impact on public health and safety."

Vermont Yankee is responsible for shipments while in transit, Williams noted. Two experts from VY's radiological shipping group had left for Pennsylvania to determine what may have caused the increase, he said Tuesday.

"We've reviewed our radiological survey and confirmed that the package left here in compliance," Williams noted.

Sheehan speculated the increase might have been due to the machine shifting during transit, resulting in a part with higher contamination levels closer to the bottom of the box. Or, he said, a piece of debris from the VY spent fuel pool could still have been attached to it.

The tool is what Sheehan called a cutter-shearer machine that crushes control rods in order to ship them more easily. Control rods are used to separate spent fuel rods in a fuel pool. They are inserted between the fuel rods in crucifix form, with a centerpiece and four blades inserted between the fuel bundles to stop the fusion process, Sheehan said.

He said reactor operators periodically install new control rods during cleanup of their spent fuel pools.

Anti-nuclear activist Ray Shadis, technical advisor to the Brattleboro-based New England Coalition, speculated that the discrepancy in radiation readings could have been due to inaccurate VY detection equipment.

What is serious is the possibility that VY radiation detection was off by a whopping factor of four and/or the probability that the contents of the package leaked and/or

became more exposed as shielding shifted or settled, Shadis said in an e-mail to the Vermont Guardian.
At 820 millirem/hour, a person exposed to the hottest part of the container could have, in one hour, received eight times the annual dose allowed by the NRC, or their annual allowable dose in less than eight minutes, Shadis noted.
Unlike the DOT, the NRC does not set a contact exposure ceiling, but the agency limits exposure for members of the public to 100 millirem annually.
"This is just a real sloppy performance," Shadis continued. "Let's hope it is an exception and not the standard.
-Report by Kathryn Casa of the Vermont Guardian

Sept. 6, 2006
High radiation reading receives "White" violation rating

A shipment from the Vermont Yankee nuclear plant that was giving off more than four times the allowable level of radioactivity posed a "low to moderate" safety risk to the public, federal regulators said Tuesday.
The Nuclear Regulatory Commission issued a preliminary "white" finding about the August shipment of a device designed to crush and cut reactor control rods from the plant site in Vernon to Salem Township, Pa.
The NRC uses a color-coded system to denote safety risks, with "green" indicating a very low risk, "white" low to moderate, "yellow" substantial and "red" high, said agency spokeswoman Diane Screnci.
In a letter dated Tuesday to Vermont Yankee, the NRC said its finding was preliminary and that it had not yet made a final determination of what enforcement action might be taken.
Screnci said she doubted the plant would be fined, but said it would get some stepped-up scrutiny.

Nov. 8, 2006 - Nuclear regulators slapped Vermont Yankee with a safety violation Tuesday, after determining plant owners failed to take the highest level of precaution when they shipped radiation-exposed equipment.
Two months ago a piece of equipment was sent from Vermont Yankee in a shielded container on a flatbed truck to a nuclear power plant in Pennsylvania. When it arrived, the freight's radiation level measured at four times the allowable level.
Entergy Nuclear received a "white" inspection finding from the Nuclear Regulatory Commission, the second lowest of the four levels of findings. That means the radioactivity posed a "low to moderate" safety risk to the public, according to Neil Sheehan, spokesman for the NRC.
The equipment Entergy was sending to the Susquehanna nuclear

power plant was a control rod crusher and shearer, owned by a separate vendor. In Pennsylvania, inspectors found a "sliver of metal" of high radioactivity and two small "hot particles" fell from the top of the crusher to the bottom, Sheehan said. That kind of disturbance in the equipment, when in transit, is not uncommon, he said.

A white inspection finding from the NRC triggers an increased oversight at Vermont Yankee. For the next four quarters, federal inspectors will have an enhanced role in reviewing how Entergy decontaminates and prepares freight before it leaves the Vernon campus.

But first Entergy has 10 days to file an appeal with the NRC, challenging the finding. For now, the NRC is still calling the white finding "preliminary," and has not said for sure what enforcement action will be taken.

Efforts to reach Entergy officials Tuesday were unsuccessful.

This is the first time in two years Vermont Yankee has received a white inspection finding. The plant hasn't gotten anything higher than a "green" inspection finding for the last two years, the lowest finding. In 2004, the NRC gave the plant a white finding for its distribution, or insufficient distribution, of tone alert radios.

The NRC uses a color-coded system to denote safety risks, with "green" indicating a very low risk, "white" low to moderate, "yellow" substantial and "red" high.

Reporty by Kristi Ceccarossi of the Reformer, New England Newspapers

Dec. 18, 2006 - Sirens mistakenly sound at nuclear power plant

Emergency sires near PPL's Susquehanna nuclear power plant went off around 11 this morning, but company officials said it was part of a test and not an actual emergency.

"We conduct silent tests of the siren system every two weeks," said Lou Ramos, spokesman for the plant. "During a scheduled test this morning, the sirens mistakenly received a signal to sound, rather than a signal for a silent test. We apologize for any anxiety that this may have caused among area residents."

The sirens can be sounded by PPL Susquehanna or by emergency management agencies in Luzerne or Columbia counties.

"The sires that sounded today were part of the old siren system, which PPL Susquehanna is in the process of replacing," Mr. Ramos said. "We will conduct a full-scale test of the newly installed siren system tomorrow."

Emergency sirens around the plant are in place to notify the public to tune into emergency broadcast stations on television

or radio in the event of an emergency at the nuclear plant or in the community.
-Report by The Daily Item Publishing Company

Dec. 20, 2006- NRC Finalizes White Finding for Vermont Yankee Nuclear Plant over Shipment of Radioactively Contaminated Equipment

The Vermont Yankee nuclear power plant will receive additional oversight from the Nuclear Regulatory Commission based on a violation involving a shipment of radioactively contaminated equipment. The violation, which has now been finalized, stems from a shipment that went from Vermont Yankee to a Pennsylvania nuclear power plant last summer.
The NRC uses a color-coded system to categorize inspection findings. They range from green, for a very low safety issue, to red, for a highly significant safety issue. In this case, the Vermont Yankee violation has been determined to be white, which signifies the issue is of low to moderate safety significance.
The finding is based on an inspection the NRC carried out from Sept. 6 through Oct. 6, 2006.
On Aug. 31, 2006, Vermont Yankee, which is located in Vernon, Vt., and operated by Entergy, prepared and shipped a package containing a radioactively contaminated control rod crusher/shearer to the Susquehanna nuclear power plant, in Salem Township, Pa. U.S. Department of Transportation (DOT) requirements apply to such shipments. DOT requires that this type of shipment be prepared so the radiation level on any external surface of the package not exceed 200 millirems per hour.

However, upon arrival at the Susquehanna plant on Sept. 1, 2006, the radiation level at a location on the bottom exterior surface of the package was measured at about 820 millirems per hour. It was later determined that during transit, discrete highly radioactive particles shifted to the bottom of the package, resulting in the radiation levels in excess of the DOT limits.
It is important to note that no actual public radiation exposure occurred during the shipment from Vermont to Pennsylvania because the affected package surface was inaccessible to members of the public.
The actual condition did not involve an exposure or hazard to the public, but it had the potential to adversely affect personnel who would normally receive the package or respond to an incident involving the package since responders could have a reasonable expectation that the package conformed with DOT

radiation limits, NRC Region I Administrator Samuel J. Collins wrote to Entergy in a letter regarding the enforcement action.
In addition, it was fortuitous that the surface of the package was inaccessible to the public during transport.
The company did not request a regulatory conference on this matter but is required to respond to the violation within 30 days.
The NRC will conduct a supplemental inspection at a future date to evaluate the companys corrective actions.
-NRC report

April 26, 2007- Work hours to be limited for some nuclear plant workers

Security workers and others in critical jobs at the nation's nuclear plants will no longer be allowed to log excessive overtime hours under new rules approved by the U.S. Nuclear Regulatory Commission.
The change in the NRC's "fitness for duty" requirements is meant to reduce fatigue among plant employees and improve safety and security.
Exelon Nuclear, owner of Three Mile Island, Peach Bottom and Limerick nuclear stations in Pennsylvania, and seven other plants nationwide, expects to increase security staffing to reduce overtime.
"Any area where you have 24/7 coverage is most likely to be impacted," said Craig Nesbit, a spokesman for the company.
The regulations, which should go into effect this year, end a policy that allowed plant operators to meet work-hour limits by averaging the hours of dozens of employees. The process allowed some employees to log hundreds of hours of overtime a month. The new rule bases hourly limits on individuals.
The work-hour limits apply to security, maintenance and operations staffers, such as control room operators.
The rule is common sense, said Dave Lochbaum, a nuclear safety expert with the Union of Concerned Scientists, a Washington, D.C.-based watchdog group.
"Groups don't get tired. People do," he said.
David Desaulniers, an NRC staffer who helped shepherd the rule change through a seven-year administrative review, said the revision will improve plant safety.
"I think that what the commission has approved will be a substantial step forward in addressing worker fatigue issues in the future," said Desaulniers, senior human factors analyst for the agency.
The shortcomings of group averaging were evident at TMI, where some security officers employed by Wackenhut Nuclear Services logged 72-hour weeks for six weeks straight last year.
In 2005, TMI officials cited three security workers for being inattentive or sleeping on the job. Each incident occurred during the night shift. Security officers contacted by The Patriot-News at the time said the incidents were not surprising given the overtime officers were being compelled to work.
The NRC rule, which must undergo review by the federal Office of Management and budget before it goes into effect, also:

• Increases the minimum break between shifts from eight hours to 10.
• Establishes training requirements for fatigue management.
• Limits the reasons plant operators may waive the hourly limits.
• Revises drug- and alcohol-testing requirements.

A veteran security officer at TMI employed by Wackenhut welcomed the changes. "It will definitely keep things from getting really bad again like they were in '02 and '03," said the officer, who spoke on the condition that he not be identified.
Another officer, also requesting anonymity, said the change would significantly reduce fatigue. But he remained skeptical of how much leeway employers would have to waive the rules under special circumstances.
Though the NRC establishes the regulations, it does not require plants to obtain agency approval before authorizing a worker to go over the limit.
Eric Epstein, chairman of the Harrisburg-based watchdog group Three Mile Island Alert, had similar concerns. "I believe the standards are contingent upon voluntary compliance," he said. "I see nothing that suggests there will be more aggressive oversight of a new fitness-for-duty program."
-Report by Garry Lenton of the Patriot-News

2007
PPL to seek license for new nuclear generator at Berwick

PPL Corp. announced on Wednesday it notified the U.S. Nuclear Regulatory Commission that it plans to apply for a license to construct and operate a third nuclear generator at its Susquehanna River plant near Berwick.
The Allentown-based company also filed a request for an interconnection study with PJM Interconnection, an organization that coordinates the movement of electricity throughout much of the mid-Atlantic region.
PPL is awaiting a license renewal for its two Salem Township nuclear generators, which supply about 25 percent of PPL's total output, and company spokesman Dan McCarthy said a rejection of those renewals could have serious repercussions for the new license.
"If we didn't get them, I don't know that we would go ahead with building the third one," he said.
The company is also considering expansions of hydro and coal plants, he said.
The letter of intent to the NRC lets the company hold a place in the processing line and retain the potential for federal production tax credits and federal loan guarantees, which expire for any application submitted after 2008, according to Jim Miller, PPL chairman, president and chief executive officer. The study request gives the new generator consideration in future regional power planning studies.
Miller said the construction would only go forward as a joint venture with another energy company, which hasn't been chosen, according to McCarthy.
The $70-million cost of the licensing application wouldn't be accounted for until the plant goes online, meaning the company doesn't expect the expense, which would mostly be spent by the end of 2008, to affect earnings forecasts for current operations.

McCarthy said no specific timelines for construction or power generation exist. Studies of safety and environmental impacts have not yet been done.
Though he didn't expect the 10-mile-radius emergency planning zone to increase with a third generator, McCarthy said there would be more nuclear material onsite.
Critics believe PPL needs to take care of its current site before moving on to new ventures.
"Rate payers are bailing PPL out for the initial boondoggle," said Eric Epstein, chairman of TMI Alert, among membership in other organizations. "There's just not enough water resources available to support another nuclear reactor."
The plant already uses millions of gallons of water a day from the river, much of which evaporates through its cooling towers, he said, raising concerns that a third generator would seriously affect the downstream flows.
McCarthy said the company maintains a reservoir in New York that could be diverted into the river on low-flow days to compensate.
PPL has 30 generating sites in Pennsylvania, Connecticut, Maine, Illinois, Montana and Long Island, N.Y., but the Susquehanna site is the company's only nuclear plant, McCarthy said. Coal plants produce about 55 percent of the company's output, with generation from hydro, oil and natural gas producing the remaining 20 percent.
-Report by Rory Sweeney of the Times Leader

Aug. 2, 2007 - PPl reports earning jump, raises forecast

PPL Corp. reported second-quarter earnings of $345 million, a jump of more than 90 percent compared to the same period of 2006. Earnings per diluted share rose about 87 percent, to 88 cents.
Allentown-based PPL distributes and generates electricity in the midstate.
The earnings increase was driven by gains on the sale of a business in El Salvador, according to PPL. Excluding that and other special items, operating earnings rose by almost 19 percent, to 63 cents per share, according to the company.
PPL beat the average analyst estimate of 51 cents per share, according to Yahoo Finance.
PPL raised its forecast for full-year earnings from ongoing operations to $2.40 to $2.50 per share, up from $2.30 to $2.40 per share. -
-Report by David Dagan

Sept. 12, 2007- PPL fires and sues its siren installer

PPL Corp. has fired and sued the Boston company it hired to replace the siren system around the Susquehanna nuclear power plant in Salem Township.
PPL claims the siren vendor, Acoustic Technology, failed to deliver on the contract because some of the 76 warning sirens it installed in a 25-mile radius around the plant failed to sound during tests earlier this year.
Attempts to reach Acoustic Technology were unsuccessful.

PPL's existing siren system, installed 25 years ago, continues to be fully functional and in use until the company selects a new vendor. The sirens are intended to alert the public to emergencies at the plant or in the community.
- Report by David Falchek of the Citizens Voice

Sept. 19, 2007- PPL pays to settle dispute over water use at plant

Two electric utilities, PPL Corp. and Exelon Corp., have paid large sums of money to settle disputes with the Susquehanna River Basin Commission over the amount of water they use to operate their nuclear power plants.

PPL last week agreed to pay $500,000 to the commission to settle a claim that it did not get permission six years ago to increase the water it takes from the river.

Last December, Exelon Nuclear paid $640,000 to settle a similar claim related to its Peach Bottom plant in York County.

The commission controls water withdrawals within the Susquehanna River basin in Pennsylvania, New York and Maryland to ensure that adequate supplies are available to all users. Under its rules, companies like PPL and Exelon must seek the commission's approval for any change in processes that requires them to increase water usage by 100,000 gallons a day, said Susan Obleski, commission spokeswoman.

The commission contended that PPL exceeded that threshold in 2001.

PPL disagreed with the commission's finding, but it agreed to settle the dispute so it could proceed with a request to increase its water use from 47 million gallons to 66 million gallons a day, said Luis Ramos, a spokesman for the utility. The increase was approved by the commission last week.

With the increase, the company uses about six-tenths of 1 percent of the river's water supply, Ramos said.

The monetary settlements, though large by the commission's standards, are inadequate, said Eric Epstein, chairman of Three Mile Island Alert, a watchdog group that has challenged PPL's requests. The settlements fail to underscore the commission's message that water is a finite resource, he said.

"The New England Patriots paid more for stealing football signals than PPL was fined for stealing water from the river," Epstein said.

PPL will need the water if the U.S. Nuclear Regulatory Commission approves its request to increase the amount of electricity its two Susquehanna reactors produce by about 100 megawatts, Ramos said. If approved, the increase would allow the company to produce electricity sufficient to power about 60,000 additional households.

The two reactors produce enough electricity to power about 1 million homes.

As the demand for electricity increases, the commission anticipates that the demand from utilities for water will grow. PPL already has announced that it is considering adding a third nuclear reactor at its plant north of Allentown.

"Right now the basin is a hotbed for future power production," Obleski said. "We see that as a growing sector."

-Report by Garry Lenton of the Patriot-News

Jan. 24, 2008 - Refueling shipment exceeded radiation limit

A shipment to the Susquehanna nuclear plant arrived on Friday emitting radioactivity beyond the limit allowed by the federal Department of Transportation, the U.S. Nuclear Regulatory Commission announced on Tuesday.
"This did not impact the public," NRC spokesman Neil Sheehan said. "Nevertheless, DOT sets these limits so the public is protected."
He said it is "premature" to discuss potential enforcement actions.
The plant is jointly owned by PPL Corp. and Allegheny Electric Cooperative Inc.
The shipment, containing equipment to be used during an upcoming refueling and maintenance outage, was surveyed for radioactivity and passed before leaving North Carolina. A similar survey upon arrival found the underside of a box containing equipment used on the refueling floor emitted 350 millirems per hour, above the 200-millirems-per-hour exposure limit.
"The spot was in a place that was inaccessible to anyone," PPL spokeswoman Nancy Bishop said. "When it left North Carolina, the measurements were below the limit. When it arrived here, the measurements were above the limit. What probably happened is that the components shifted in transit."
The box was put into an onsite facility "designed and licensed to hold radioactive material," she said, where it will stay until it's needed for refueling.
The equipment was being shipped by GE Hitachi Nuclear Energy, which PPL hired to execute the refueling. The equipment can become radioactive, Bishop said, because "it can come in contact with various radioactive components when it's on the refuel floor … during maintenance."
- Report by Rory Sweeney of the Times Leader

Oct. 27, 2008- NRC Monitoring alert issued at Susquehanna plant

The Nuclear Regulatory Commission (NRC) is monitoring an Alert declared this afternoon at the Susquehanna 2 nuclear power plant in Salem Township (Luzerne County), Pa. An Alert is the second-lowest of four levels of emergency classification used by the NRC.
At 4:15 a.m. today, maintenance work was initiated on a water line that is part of a reactor safety system for the plant. That work involved the use of a "freeze seal" – that is, placing a device containing nitrogen over a section of piping so that the water inside the line can be frozen. Once frozen, the line can be isolated to allow maintenance to be performed on it.
PPL, the plant's owner and operator, declared an Alert at 12:06 p.m.
-Report from Nuclear Regulatory Commission

Sept. 22, 2010 – Plant officials notify NRC of a non-emergency event. Plant says the Unit 2 high pressure coolant injection system was determined to be in operable due to a minor lube oil leak that could not be corrected immediately.

Nov. 12, 2010- The NRC issued its findings from an inspection of Units 1 and 2 for the third quarter ending Sept. 30, 2010. In its report, the NRC said it issued a preliminary white finding (the second lowest in severity) based on a July 16, 2010, flooding event in the Unit 1 condenser bay. The flooding event also yielded two non-cited violations. In addition, the NRC said two other non-cited violations were found during the quarterly review.

The preliminary white violation stems from inadequate procedures in the maintenance and operation of the main condenser water boxes and circulating water system, the NRC said. This resulted in an internal flooding event on July 16, 2010, that resulted in 1 million gallons of water 12 feet deep in the Unit 1 main condenser bay. The flooding caused a shutdown of the reactor for about 20 days.

The cause and severity of the flooding was the improper installation of a gasket and deficiencies that led to a delayed response in controlling the leak.

The NRC said, "It was determined that the leak initiated from the D main way cover gasket being partially extruded under normal system operating pressures," the NRC said. "This was caused by an inadequate procedure to install the main way gaskets upon completion of maintenance."

In addition, the NRC said that D water box was mislabeled as B. "This led to operators in the field misidentifying the water box that was leaking and the operators in the control room selecting the wrong water box to isolate," the NRC report said.

Finally, the NRC said, it was determined that plant procedures "did not have specific instructions on how to isolate a condenser water box leak. … No guidance was provided to assist the operator in identifying the location and isolating leaks associated with the water boxes."

The NRC noted that plant operator PPL "did not adequately: 1) evaluate previous circulating water system water box main way gasket leaks (April 2007 and March 2008) to ensure that future occurrences could be prevented; and 2) evaluate and correct a known issue in an off-normal procedure that complicated the operator's response to the event (November 2009.)"

The NRC said it issued a preliminary white finding of low to moderate safety significance, and said a final determination would be announced within 90 days of its Nov. 12, 2010, letter to the plant.

As offshoots from the July 16, 2010, incident, two non-cited violations were

issued of low safety significance.

One of them involved an inadequate procedure to transfer water from the condenser area to a condensate storage tank berm. The NRC noted that the procedure failed to include a maximum level at the storage tank berm that was acceptable to limit interaction with other safety-related equipment.

The NRC said water was transferred to the berm to a level that caused water intrusion into cable conduit and junction boxes of other equipment.

“Failure to have an adequate procedure for transferring water from the condenser area to the berm to limit interactions with other safety-related equipment is a performance deficiency which was reasonably within PPL’s ability to foresee and correct,” the NRC report said. “The finding was not subject to traditional enforcement because there were no actual consequences, it was not willful, and did not impact the NRC’s ability to regulate.” The matter was entered into PPL’s correction action program, and was treated as a non-cited violation by the NRC.

Another non-cited violation ascertained after the July 16, 2010, flooding event was the failure to accurately model the simulator for the reactor core isolation cooling (RCIC) operation at reduced flow rates. Following the July 16, 2010, incident, PPL identified that the RCIC system operation was unstable when attempting to operate in automatic flow control with the flow control set below

the designed flow rate. “Simulator training conditioned the operators to expect RCIC system operation to be stable at all selected flow rates when operated in automatic,” the NRC said. “As a result, during an actual event, the operator could misdiagnose the cause or means to correct unstable RCIC operation and eliminate an injection system to the reactor pressure vessel unnecessarily.”

The NRC said PPL entered the matter into its correction action program.

Two other self-revealing non-cited violations were found. One involved an Aug. 10, 2010, incident in which operators discovered a Freon leak from the Unit 1 chiller. Because of the leak, an alert was issued, the second lowest of four emergency classifications.

During the incident, PPL said it did not have installed or portable means to determine Freon concentrations, the NRC said. “Without the ability to remotely measure Freon concentrations or measure Freon concentrations using a portable meter, PPL could not evaluate the atmospheres during a known Freon leak and was forced to rely upon personnel showing exposure effects to declare this event,”

the NRC report said. ”Furthermore, PPL did not have the Freon measurement capability to determine if respirators were required. Thus, PPL did not have two of three methods for determining (what was) available to them for a known hazard.”

PPL entered this matter into its corrective action program.

Another self-revealing non-cited violation involved simulator modeling for its integrated control system. “Since the simulator model did not reflect actual plant performance, the Susquehanna simulator introduced negative operator training that affected the ability of the operator to take the appropriate and timely actions during an actual event to prevent a plant scram (emergency shutdown),” the NRC said. The NRC said this was of very low safety significance and was treated as a non-cited violation because it was entered into PPL’s corrective action program.

The NRC report also listed three violations of low safety significance.

Nov. 19, 2010 – The NRC issued a report on an inspection of Units 1 and 2 conducted from Sept. 13 to Oct. 8, 2010. The inspection centered on selected risk components and operator actions in both safety-related and non-safety related systems. The review included components such as pumps, breakers, heat exchangers, transformers, and valves.

In the report, the NRC said it found one item of very low safety significance that was treated as a non-cited violation. The item involved the design, testing and operation of a 125-volt direct current battery charger circuit breaker.

According to the report, plant operator PPL “did not adequately evaluate the over-current trip setting test results” for a particular breaker “to ensure they were within the established acceptance limits, and subsequently placed the breaker in-service with an as-left trip setting outside of the approved acceptance band.” The breaker was returned to service on Feb. 8, 2010, the NRC said.

It added that other breakers were returned to service prior to that Feb. 8, 2010, date with setting values outside of acceptance levels. “The team identified that six of the 12 breakers reviewed had recorded as-found trip setting values outside of the acceptance range,” the report said. “PPL performed the six-year breaker preventive maintenance work only during plant outages, by replacing an installed breaker with one for which a preventive maintenance was recently completed, then placing the just-removed breaker into a spare status. Then, during the next outage, typically one to three years later, a

preventive maintenance is performed on the spare breaker and it is returned to service in a different load center location.” The NRC added that it noted that “there were several different trip setting values for the various direct current load center breakers.”

The NRC noted in its finding that a test program much be established to ensure that all testing performs satisfactorily and that test results are documented to make sure that test requirements have been satisfied. However, the NRC noted that between Jan. 16, 2008, and Oct. 8, 2010, PPL "did not adequate evaluate direct current circuit breaker test results to ensure that the test requirements had been satisfied."

These issues were entered into PPL's corrective action program.

On Nov. 16, 2010, the NRC issued a brief report on its evaluation of an Oct. 5, 2010, emergency preparedness exercise at the plant. No findings were identified.

May 31, 2011 – The NRC issued a determination stemming from a request originally submitted in January 2008 for information on the Berwick plant's ability to manage gas accumulation at its facilities.

Based on the responses from PPL, the plant operator, the NRC said the licensee has "acceptably demonstrated" that gas accumulation "is maintained less than the amount that challenges operability of these systems, and that appropriate action is taken when conditions adverse to quality are identified."

July 20, 2011 – The NRC issued a letter on the completion of its triennial (every three years) fire inspection of Units 1 and 2 at the plant.

Based on the inspection, two findings of very low safety significance were identified. The NRC said it would treat the findings as non-cited violations because they were entered into the plant's corrective action program and they were of very low safety significance.

One of the violations involved the failure of plant operator PPL to adequately implement "a fire water supply system with two redundant 100 percent capacity fire water pumps and three sources of supply water."

"Design flow rates could not be achieved and maintained by a single fire water pump for all required sprinkler systems," the report said. "PPL performed an operability evaluation and determined the affected sprinkler systems were capable of performing their intended functions at lower flow rates and for a shorter duration than originally specified by plant design. In addition, the Unit 2 cooling tower basin was determined to be inoperable as a sole source of supply water for the fire water system."

"From initial plant conduction until present," the report added, "PPL failed to provide two redundant fire water pumps that could be supplied from any of three separate water sources." The NRC said the issue was entered into PPL's corrective action program.

The other finding involved the failure to implement all provisions of the approved fire protection program. "Specifically, PPL established acceptance criteria in the fire pump performance tests that were non-conservative compared to design basis requirements and the test acceptance criteria were insufficient to demonstrate that the fire pumps could provide sufficient pump pressure to satisfy required sprinkler system hydraulic needs."

The report added, "PPL's corrective actions program required fire protection deficiencies be identified and corrected. The team determined that PPL had not adequately implemented the required quality assurance criteria for fire pump testing, in that the combined tests did not demonstrate that pump performance conformed to design requirements or would perform satisfactorily in service."

July 27, 2011 - The NRC staff issued a letter on its inspection of TMI for the quarter running from April through June 2011. The staff said no findings of significance were identified.

The report added that inspectors determined "that corrective actions to address configuration control performance deficiencies from the first half of 2010 and transient material control deficiencies from all of calendar year 2010 continued to be effective." It added that the number of configuration control deficiencies identified in the first half of 2011 "were notably reduced from the first half of 2010."

But the report noted that inspectors "identified several instances for which corrective action timelines was not commensurate with potential significance of degraded equipment conditions." It added, "Station management acknowledged the issues, verified they were captured in the corrective action program, and initiated several significant station-wide actions to reemphasize worker performance fundamentals. The inspectors determined these correction actions were appropriate and observed improved worker fundamental performance through the end of June 2011."

Aug.19, 2011 – The Unit 2 reactor of the nuclear power plant shut down automatically at 10:46 a.m. The unit was operating at full power at the time. The plant resumed generation of electricity on Aug. 23, 2011.

The shutdown occurred during scheduled equipment testing. A review by staff found a single-point wiring deficiency in the unit's digital control system, the plant said.

Unit 1 was not affected by the events.

Sept. 1, 2011 –The NRC completed its mid-cycle performance of Susquehanna Units 1 and 2

The NRC determined that the performance of Unit 1 during the most recent quarter ending June 30, 2011, was within the "degraded cornerstone column" of its oversight process. This was due to one finding having low to moderate safety significance and one performance indicator having low to moderate safety significance.

The one finding related to an internal flooding event on July 16, 2010, that required a plant shutdown. The performance indicator involved unplanned shutdowns occurring in 2010 on April 22, May 14, and July 16, and on Jan. 25, 2011.

The NRC found that the performance of Unit 2 was within the licensee response column of the oversight process.

Nov. 8, 2011 – The NRC issued a severity level IV violation against the plant operator for failure to notify the NRC of the change in medical status of a licensed reactor operator. It was determined that the operator needed to wear eyeglasses as early as April 2009, but plant licensee PPL "did not inform the NRC or request an amended license" for the operator until August 2011.

"Therefore," the NRC said, "the reactor operator performed license duties without an NRC-approved, amended license from April 2009 through August 2011, until the NRC identified the issue."

The NRC noted that this is a "repetitive" issue. (See report dated Jan. 28, 2010, in which a senior reactor operator continued to conduct NRC-license activities after not meeting a specific medical prerequisite and there was no notification to NRC to ensure the person's license was conditioned to require corrective lenses.) In that Jan. 28, 2010, report, the NRC noted that a civil penalty would not be proposed, but "significant violations in the future could result in a civil penalty."

The latest NRC report does not mention any possible civil penalty for the level IV violation.

The violation was found during an examination for the third quarter from July through September 2011. In the report, the NRC also found a non-cited security level IV issue and two NRC-identified and one self-revealing finding, all of very low safety

significance. Additionally, the report said two PPL identified violations were determined to be of very low safety significance and were treated as non-cited violations.

The other level IV violation involved the recording of reactor coolant system leakage values under the performance indicators for Units 1 and 2.

“”PPL submitted inaccurate data for the affected performance indicators for Units 1 and 2 every quarter from April 2000 through its current submittal of June 2011,” the report said. “PPL’s failure to identify and correct the recurring errors over this period of time indicate the existence of a programmatic issue.”

Even though the data didn’t cross certain thresholds, “the inspectors concluded that PPL had reasonable opportunity to foresee and correct the inaccurate information prior to the information being submitted to the NRC,” the NRC report said. “The finding was not considered to be more significant since had this information been accurately reported, it would not have likely caused the NRC to reconsider a regulatory position or undertake a substantial further inquiry.”

The matter has been placed into PPL’s corrective action program.

Jan. 6, 2012 – The NRC issued a notice of violation to a senior reactor operator who failed to notify officials of the Susquehanna Steam Electric facility of a criminal violation filed against him by Indiana State Police prior to his return to work in July 2010.

The NRC said the senior operator had been issued a citation on July 10, 2010. The citation was for public indecency/indecent exposure, according to NRC records.

The senior operator did not report the legal action to his superior or any other PPL related official when he returned to work at the Berwick plant on July 18, 2010. He subsequently reported the legal action on July 21, 2010.

The senior reactor operator had unescorted access at the plant and was required by NRC regulations to promptly report legal actions issued to him by law enforcement agencies. The senior reactor operator was on vacation on July 10, 2010, and was scheduled to return to work on July 21, 2010. However, he reported back three days earlier to assist in a plant-flooding event, the NRC said.

The operator is no longer employed by PPL, the owner of the plant. He was issued a notice of violation, but no enforcement action is being taken against PPL, the NRC said.

May 2, 2012 – The NRC issued a report on the first quarter inspection of Units 1 and 2. The report listed three NRC-identified findings and one self-revealing finding of very low

safety significances. Also listed were two licensee-identified violations determined to be of very low safety significance. All findings were treated as non-cited violations.

One NRC-identified issue involved plant licensee PPL's safety-related motor operated valve program. The NRC noted that the program "lacked a procedure, qualification and prescribed acceptant criteria for actuator grease analysis and PPL improperly implemented maintenance instruction for lubricating valve stems."

In the report, the NRC noted that "PPL did not have a procedure for qualitative motor operated valve grease analysis … there was a general lack of documentation of grease analyses associated with the grease sample work orders…(and) the current motor operated valve engineer and predecessor did not possess a qualification for grease analysis."

The report added, "The lack of a procedure, repeatable acceptance criteria, qualification, and multiple cycles without stem lubrication could result in untimely actuator overhauls and ultimately motor operated valve degraded performance."

The NRC also identified a problem in that "PPL did not have adequate instrumentation to assess and determine if an abnormal radiological effluent release was in progress such that the emergency action level classification process would declare an Alert accurately and in a timely manner." The report noted that PPL had previously received two non-cited violations for inadequate instrumentation since 2008.

A third NRC identified issue involved written procedures for radiation work permits. The issue materialized when some workers attempted to transfer an 1100 Curie Cesium 137 source from a shipping cask on Dec. 5, 2011. During this project, the contractor directed the effluents technician to use additional tooling to provide more manual pressure to withdraw a shield plug. According to the report, the plug was withdrawn about three inches more than prescribed and the electronic dosimeters worn by the contractor and the effluents technician immediately went off, indicating high dose rates. The exposure rate was approximately three seconds before corrective actions took effect.

However, higher levels of PPL management was not informed of the incident until the source load operation had been successfully completed, the NRC report said. "Consequently, the required actions were not completed prior to restarting work and measures to prevent reoccurrence were not fully implemented," the report said.

The self-revealing finding was identified "when a worker did not comply with a radiological barrier and protective measures for high radiation area entry." On March 22, 2012, an effluents department employee was working in the Unit 1 turbine building when he tried to get a better view of a doorway for a future high-efficiency particulate air filter move, the report said. The worker leaned into a posted high radiation area during this process. The worker exited the area and it was determined the total dose was 1.5 millirem.

The PPL-identified issues involved transient combustibles being stored in a restricted area in the Unit 1 reactor building on Nov. 30, 2011, and the lack of preventative maintenance or replacement of the overspeed test controller at the electronic governor module of Unit 2's high pressure coolant injection.

May 7, 2012 – The NRC issued a report dealing with a supplemental inspection at the Unit 1 reactor from Feb. 13 through March 2, 2012. The inspection stemmed from unplanned scrams (plant shutdowns) in 2010 and early 2011, and an internal flooding incident in the third quarter of 2010 that resulted in a white finding from the NRC of low to moderate safety significance.

In the report, the NRC said that plant licensee PPL "adequately addressed the unplanned scrams." However, the report said the plant had not made "sufficient progress on the procedure quality upgrade project for the internal flooding event for the NRC to evaluate its effectiveness."

The internal flooding event was previously discussed in NRC reports issued in Nov. 12, 2010, and Sept. 1, 2011. The incident occurred on July 16, 2010, resulting in 1 million gallons of water 12 feet deep in the Unit 1 main condenser bay The flooding caused a shutdown of the reactor for about 20 days. It was attributed to inadequate procedures in the maintenance and operation of the main condenser waterboxes and circulating water system.

The incident was part of the unplanned scrams affecting the plant. Others occurred on April 22 and May 14 of 2010, and Jan. 25, 2011.

The NRC report said PPL performed a comprehensive evaluation relating to the scrams. "Two of the four unplanned scrams were caused by inadequate performance of maintenance, and the remaining two scrams occurred during the testing of a new Integrated Control System," the report said.

In addition, the report said, PPL determined that the primary causes for the unplanned scrams were "less that adequate risk informed decision making; less than adequate problem identification and resolution, including use of the Corrective Action Process; operating experience and cause analysis; less than adequate procedure quality use and adherence; maintenance performance that was not adequate; and management oversight that provided less than adequate enforcement of standards and expectations."

Regarding the July 16, 2010, flooding event, the NRC report noted PPL completed three root cause evaluations. "The inspectors determined that PPL failed to adequately address extent of condition and extent of cause for the white finding," the NRC said. "The inspection team concluded that the corrective actions taken for extent of cause were narrow because torque checks of selected flanges of other plant equipment were not included … Consequently, the NRC was not able to effectively evaluate the robustness, adequacy and effectiveness of future actions to address extent of condition and extent of cause, including procedure quality improvements."

As a result, the NRC said the white finding will remain open to verify that "the concerns of extent of condition and extent of cause of inadequate procedures used to torque gasketed flanges are appropriately assessed and that adequate corrective actions are identified and implemented; and to verify the effectiveness of the station's procedure quality upgrade project."

As part of the report, the NRC noted that inspectors "determined that the safety conscious work environment (at the pant) is not currently degraded. Interview comments indicated that the plant staff members are not deterred from reporting safety concerns using the condition reporting system. Plant staff members interviewed consistently express an awareness of the necessity of reporting safety concerns and frequently expressed their commitment to assuring that any reported safety concerns were clearly understood."

June 19, 2012 – Operators at the Unit 1 reactor performed a planned shutdown to investigate the source of a minor water leak inside the containment structure.

A plant official said the leak does not affect the safety of the plant or the public. Unit 2 is continuing to operate at full power.

July 2, 2012 – Unit 1 at the Susquehanna power plant resumed generating electricity after repairs were made of a small water leak inside the containment structure surrounding the reactor.

Officials said a weld was repaired where the leak was found and they inspected similar equipment elsewhere to make sure there were no problems.

July 19, 2012 – The NRC completed a security inspection at Units 1 and 2 on June 15, 2012.

In a letter to the plant operators, the NRC said it identified two findings of very low security significance. "The deficiencies were promptly corrected or compensated for, and the plant was in compliance with applicable physical protection and security requirements within the scope of this inspection before the inspectors left the site," the letter said.

Details of the findings were not released. The letter said the findings involved violations of NRC requirements.

Nov. 7, 2012 – Unit 1 at the Susquehanna Steam Electric Station resumed service after completing a turbine blade inspection. PPL, the plant owner, said the inspection found signs of cracking on a small number of turbines. The blades were replaced.

PPL also said it will shut down Unit 2 for a similar inspection in the near future.

Nov. 9, 2012 – Unit 2 at the Berwick area plant was shut down because a computer system controlling the reactor's water level was not functioning properly.

Nov. 13, 2012 - The NRC issued a report on its third quarter inspection of Units 1 and 2 at the Susquehanna Steam Electric Station.

The report listed two NRC-identified findings and one self-revealing finding of very low safety significance.

The report also detailed a review conducted over the failure of an emergency diesel generator in December 2011., The NRC initiated an investigation at the start of 2012 to determine whether maintenance technicians and a quality control inspector "deliberately failed to property assemble delivery values on 15 fuel pumps." As a result of the investigation, the inspectors determined that the diesel generator failure was the result of "improper planning and implementation of work instructions" and not due to deliberate actions by the technicians and quality control inspector.

The NRC findings included a concern that PPL, the plant owner, "did not maintain adequate procedures to respond proactively to acts of nature." Specifically, the NRC report said, PPL's "adverse weather procedure did not ensure timely risk management activities for imminent adverse weather" despite advisories of a high wind watch and a tornado watch.

The National Weather Service had issued a high wind watch for Luzerne County from Sept. 17, 2012, through the evening of Sept. 18, 2012. A high wind advisory was issued on Sept. 19, 2102, and there also was a tornado watch for the county, the report said.

"The inspectors noted a number of items that could be potential missile hazards" such as "loose pieces of wood, loose wood blocks, wooden pallets, a wooden cable spool, stanchions, piping, piping flanges, a metal–frame door and pieces of sheet metal." Despite the wind and tornado advisories, "the inspectors observed that not all of the items the inspectors had observed were noted by PPL nor were they all removed during the PPL walkdown."

"The inspectors," the report added, "concluded that, procedurally, PPL would not take anticipatory actions until there is a confirmed tornado and that tornado has probable impact on the station. This approach was determined to be inadequate given that the touchdown of a tornado with probable impact on the station did not allot sufficient time to take preventive measures or mitigating actions and that a proactive approach to acts of nature was warranted."

The report said PPL entered this matter into its corrective action program.

The NRC's second finding indicated that PPL did not implement risk management actions during maintenance as required by station procedures. This stemmed from various activities.

"During the months of July and August 2012, there were multiple instances of inadequate implementation of risk management actions while maintenance was conducted," the report said. The NRC said the matter would be treated as a non-cited violation due to its low safety significance and because the finding was entered into PPL's corrective action program.

The self-revealing finding involved inadequate troubleshooting measures that caused repeated inoperability of secondary containment. This stemmed from an April 13, 2012, incident in which load centers were affected. The loss of the load centers "impacted secondary containment in that both reactor building heating, ventilation and air conditioning (HVAC) Zone I equipment compartment exhaust fans tripped due to the loss of power." This set off a cascade of events that rendered Unit 2 secondary containment inoperable and affected the Unit III supply fans.

After reviewing an evaluation of the problem, it was determined that "the troubleshooting plan was limited in scope due to the desire to limit interruption to refueling floor work and pose minimal risk to the operating unit's Zone III HVAC," the report said. "The troubleshooting did not identify all of the faulted heaters and PPL did not account for this by ensuring that system configuration at the time of the equipment's restoration would not result in the subsequent loss of secondary containment or protected equipment."

In a licensee-identified violation in the report, the NRC noted that PPL said a 10-meter wind direction instrument on its primary meteorological tower was inoperable on Sept. 27, 2011. However, the Nuclear Emergency Response Organzation was not notified of this problem. "From Sept. 27 through Sept. 30, 2011, PPL did not maintain an adequate method for accurately calculating dose projections and issuing publicly available records to offsite agencies,

The NRC said this matter was a green finding of low safety significance "since the capability for immediate dose projection existed via alternative meteorological towers." The matter was entered into PPL's corrective action program.

Nov. 19, 2012 – Unit 2 at the power plant resumed generating electricity after completing a turbine blade inspection and repairing a computer system that malfunctioned on Nov. 9. A previously announced turbine inspection revealed signs of cracking on a small number of blades. Those blades were replaced.

The computer system malfunction was caused by a failure of a processing unit that was replaced during the outage, PPL, the plant owner, said.

Nov. 20, 2012 - Unit 2 at the plant was shut down shortly after returning to service because of a hydraulic oil leak on a system that controls the flow of steam into the turbine, PPL said.

Nov. 29, 2012 - Unit 2 returned to service after repairs of the hydraulic system associated with the unit's main turbine. PPL, the plant owner, said officials detected leaks in the system as part of a routine inspection during startup procedures while at very low power levels.

Dec. 14, 2012. The inspection focused on an evaluation of changes, tests or experiments, and permanent plant modifications.

No findings were identified in the inspection, the NRC said.

Dec. 14, 2012 – The NRC approved an exemption allowing the owner of the plant to postpone its biennial emergency preparedness exercise from Oct. 23, 2012, to Feb. 26, 2013.

Plant owner PPL requested the exemption due to an unplanned Unit 1 outage due to cracking experienced on some turbine blades (discussed in previous NRC reports).

Dec. 16, 2012 – Unit 2 at the nuclear power plant shut down automatically during routine testing of a valve on the unit's main turbine system. Operators were investigating why the testing caused a shutdown.

Dec. 28, 2012 – Unit 2 at the nuclear power plant resumed generating electricity after its Dec. 16, 2012, shutdown.

Operators said an electrical connection problem caused the shutdown during a routine valve test. "An unrelated issue with the positioning of a valve on one of the unit's main water pumps during start-up activities extended the out-of-service time," plant owner PPL said.

Jan. 25, 2013 – The NRC issued a follow-up supplemental inspection report relating to a July 16, 2010, internal flooding incident at Unit 1 of the Susquehanna Steam Electric Station.

The NRC had issued two previous reports on the incident, one in late 2010 and another on May 7, 2012. The NRC had issued a white finding of low to moderate importance to safety.

The flooding incident, totaling 1 million gallons of water 12 feet deep in the main condenser bay, was one of four unplanned scrams (plant shutdowns) in 2010 and early 2011. In its May 2012 report, the NRC noted that plant owner PPL had not made sufficient progress stemming from the flooding incident.

NRC inspectors returned to the site in late November 2012 and "determined that PPL's extent of condition reviews and progress on the procedure upgrade project were sufficient and appropriate to address the identified significant weakness as documented during the

initial supplemental inspection report." Because of this, the NRC determined the inspection objectives were satisfied and the white finding was closed.

"The inspectors determined there was adequate and reasonable progress accomplished on the procedure upgrade project since April 2012, especially when considering the number of potential distractions posed by planned and unplanned plant shutdowns," the NRC report said. "Based on review of condition reports and personnel interviews, the inspectors determined PPL personnel have checked and adjusted the upgraded procedure progress based on initial implementation learnings and station personnel feedback," the report added. "The inspectors concluded completed upgraded procedures are of good quality with positive station response."

The flooding incident occurred when a manway gasket rolled out of position, the result of inadequate maintenance procedures. While PPL addressed the direct cause of the flooding incident, the NRC previously noted that PPL's assessment was narrowly focused because the company "did not include a sampling of other gaskets that could have been similarly affected by inadequate maintenance procedures." Those issues were satisfactorily addressed in the latest NRC report.

Feb. 13, 2013 – The NRC issued its report of a quarterly inspection for the last three months of 2012. In the report, the NRC observed three findings of very low safety significance and two Severity Level IV violations that were also viewed of very low safety significance and treated as non-cited violations.

In addition, the report detailed problems with timely notification and management oversight regarding medical conditions of licensee employees.

The non-Level IV violations involved a failure to timely notify some emergency agencies during a emergency preparedness drill; improper valuation of a stress fabrication factor that resulted in a weld failure in June 2012; and not properly classifying a functional failure of the Unit 2 125 Volt Direct Current system on Nov. 23, 2011.

The emergency drill occurred on Nov. 13, 2012. An unusual event was declared in the drill at 8:28 a.m. Attempts to contact the offsite response organizations - Pennsylvania Emergency Management Agency, Luzerne County Emergency Management Agency and Columbia County Emergency Management Agency - were initially unsuccessful because the "phone had no dial tone," the NRC report said. Some connectivity was subsequently restored, but two of the three emergency response organizations were not notified within the 15 minutes as required after declaration of an unusual event. Moreover, the NRC observed the post-drill condition report made no mention that the two agencies were not notified within 15 minutes of the declared emergency or that "equipment performance or controller intervention potentially interfered with adequate observation of emergency response organization performance."

The report added, plant licensee PPL "did not identify that timely notification was not made with two of the off-site response organizations as required by regulatory

requirement and the (plant's emergency plan). Additionally, PPL evaluated a performance indicator opportunity as a success despite drill controller action precluding satisfactory observation of emergency response organization performance."

The NRC noted that PPL entered the drill critique deficiency into its corrective action program, and the matter was treated as a non-cited violation.

The weld failure involved a unexpected increase in the drywell leak rate and a shutdown of Unit 1 on June 19, 2012. The problem stemmed from improper stress calculations dating to 2004.

"From 2004 until June 19, 2012," the NRC report said, "PPL failed to accurately translate design basis requirements to ensure Unit 1 reactor coolant system piping systems met American Society of Mechanical Engineers core requirement to pipe stress analysis calculations … due to using an incorrect stress intensification factor," the report said. "The weld in question subsequently failed, resulting in pressure boundary leakage in excess of technical specification limits from June 16 to June 18, 2012.

The report said PPL acted to make repairs to the piping. The matter was treated as a non-cited violation because of its very low safety significance and because the finding was entered into PPL's corrective action program.

The other low-level violation involved the failure of PPL staff to demonstrate that performance of the Unit 2 125 Volt Direct Current was being effectively controlled through appropriate preventive maintenance. "Specifically," the report said, "PPL staff did not property classify a functional failure of the … system on Nov. 23, 2011, as maintenance preventable until prompted by questions from inspectors." The issue also was treated as a non-cited violation.

Among the Security Level IV issues, NRC inspectors identified a failure of PPL to submit an event report dealing with electrical power monitoring associated with several Unit 1 reactor protection system breakers on May 8, 2012. The report is to be submitted within 60 days. The report said "PPL personnel had determined that the event was not reportable because it did not result in a loss of safety function or condition prohibited by plant technical specifications."

But the NRC noted that plant licensees must submit an event report for "any event where a single cause or condition caused two independent training of channels to become inoperable in a single system designed to shut down the reactor within 60 days of discovering the event." Despite this, PPL did not submit a report within the allotted time period. The NRC said it was treating the mater as a non-cited violation, and it was entered into PPL's corrective action program.

The other Level IV violation involved a failure of PPL to notify authorities within eight hours of a valid actuation of the Unit 2 reactor protection system on Nov. 9, 2012. On

that date, Unit 2 at the facility was manually scrammed (shut down) following a failure in the integrated control system and a subsequent lowering of reactor water level.

A few hours after this action, an automatic scram was generated. The NRC said PPL submitted a report within the required four hours of the original scram, but questioned whether PPL operators made a report within the required eight hours after the second scram.

The NRC said the issue was of very low safety significance, was not repetitive or willful, and was entered into PPL's correction action program. It was treated as a non-cited violation.

The report also addressed other issues involving notification deficiencies at the plant. The report said PPL staff became an investigation in February 2012 "in response to a series of NRC findings from 2007 to present involving required NRC notifications not being made that affect license conditions of licensed operators." As a result of the review, PPL submitted on July 20, 2012, 10 medical updates to the NRC, four of them permanent changes in medical conditions that were "not submitted in a timely manner as required."

"Over a period of four years, a number of licensed operators developed potentially disqualifying medical conditions that were not property evaluated by PPL" in accordance with requirements, the report said. "In addition, during this same time frame, there were a number of cases (i.e., both historical and current) where PPL potentially failed to notify the NRC of a change in medical condition within 30 days" as required.

Based on the PPL review, the problems "appear to be associated with PPL's failure to properly train and provide oversight for their medical review officer and the Berwick examining physician regarding compliance with the requirements," the NRC report said. "The medical issues identified during this time frame appear to be related to a lack of knowledge and inadequate oversight."

The report added, "The inspectors concluded that PPL's failure to properly identify potentially disqualifying medical conditions resulted in failure to notify the NRC of these changes in medical conditions within 30 days, and in some cases may have affected the operator's ability to comply with operator license conditions that should have been in effect while standing watch. This was a performance deficiency within PPL's ability to foresee and correct and should have been prevented. The NRC has issued conditioned individual operator licensees which address the potentially disqualifying conditions for the operators."

The NRC said this was an unresolved issue.

Feb. 25, 2013 – The NRC issued a report covering a two-week inspection completed on

March 4, 2013 - In an annual assessment letter for 2012, the NRC said it found that Unit 1 was within the regulatory response column of the NRC's Reactor Oversight Process because of one finding having low to moderate safety significance that was related to an internal flooding event on July 16, 2010. Unit 1 began the assessment period in the Degraded Cornerstone Column due to this finding and due to unplanned shutdowns per 7,000 critical hours. On May 7, 2012, the NRC issued an interim response that closed the finding related to the unplanned scrams, or shutdowns. The other finding was closed in early 2013, moving Unit 1 to the licensee response column.

For Unit 2, the NRC determined during the most recent quarter that the plant was within the licensee response column because all inspection findings had very low safety significance.

The NRC also issued a concern over cross-cutting issues, and said this matter will remain open until PPL (the plant licensee) "has demonstrated sustainable performance improvement as evidenced by effective implementation of an appropriate corrective action plan that results in no safety significant findings and a notable reduction in the overall number of inspection findings with the same cross-cutting aspect."

The NRC said this was the fourth consecutive assessment letter documenting "substantive" cross-cutting issues.

May 9, 2013 – Operators at the power plant disconnected Unit 1 from the regional power grid as part of a scheduled outage to install turbine modifications.

May 14, 2013 – The NRC issued a quarterly report for the first three months of 2013. In the report, the inspectors identified four findings of very low safety significance, and two severity level IV non-cited violations, one of them associated with one of the four findings.

The findings include plant licensee PPL's incorrect implementation of the clearance process while returning the common off-gas recombiner to service after maintenance; PPL's failure to accurately report unplanned scrams (plant shutdowns) with complications for the period of October 2012 through December 2012; storage of transient combustibles in restricted areas without evaluations by the site fire protection group; and failure of PPL to ensure that alarm response procedures for control room cooling fan train failures were adequate.

The first finding involved a Dec. 12, 2012, incident when operators incorrectly left a manual isolation valve in the closed position for the common recombiner. Discovery of this problem was made on Feb. 4-5, 2013, when plant staff observed a steam leak on the Unit 2 off-gas recombiner. Operators reduced power at Unit 2 to 64 percent due to this problem.

The second finding stemmed from a Dec. 16, 2012, reactor scram at Unit 2 during turbine control valve testing. Inspectors reviewed PPL's reporting of the scram and determined

that staff did not view the matter as "complicated" based on Nuclear Energy Institute standards. "This scram, when combined with a second complicated scram, which was accurately reported in the same quarter, caused the performance indicator to cross the green-white threshold," the NRC said. (Green findings are the lowest, and white findings are the next lowest.) The finding also was determined to be a severity level IV violation that was treated as a non-cited violation because it was of very low safety significance, was not repetitive or willful, and was entered into PPL's corrective action program.

The third finding involved storage of transient combustibles in restricted areas without an evaluation by site fire protection personnel. NCR inspectors found materials on Jan. 4, 2013, during a walkdown in the Unit 2 reactor building. During the walkdown, inspectors said an overhead crane and two trash cans were being stored in a restricted area. The crane and trash cans were relocated after PPL was notified. Other walkdowns uncovered improper storage of combustibles on Jan. 22, 2013 and March 14, 2013.

"PPL staff completed an apparent cause evaluation that determined there was not awareness of fire protection requirements and locations of restricted areas and that those requirements were not adequately or repeatedly stressed to plant personnel," the NRC report said. "Based on this, inspectors determined that management and supervisory oversight was the most significant contributor to the performance issue."

In the fourth finding, the NRC report said that "adequate instruction did not exist to align equipment in response to a tripped fan train condition and this, subsequently, resulted in the unexpected loss of both control room cooling trains during the implementation of the clearance order process,"

The other severity level IV non-cited violation involved PPL personnel making changes affecting Units 1 and 2 without obtaining a license amendment. The report said PPL approved changes to support raising the American Petroleum Institute gravity of ultra low sulfur diesel fuel oil deliveries. The NRC said such a change required a license amendment prior to implementation. "The inspectors noted the change to accept ultra low sulfur diesel with a higher specific gravity fuel oil had not yet been physically implemented because it had not been accepted for delivery prior to the inspector's questions,' the report said. The report added that PPL entered the matter into its corrective action program, and the issue was treated as a non-cited violation.

The report also listed two items of very low safety significance identified by PPL, the plant licensee.

June, 5, 2013 – Unit 2 at the Susquehanna nuclear power plant resumed operations following a refueling and maintenance outage.

Workers replaced about 40 percent of the Unit 2 reactor fuel during the outage, and inspected and replaced several pieces of the unit's turbine assembly. In addition, crews replaced a 24-ton motor and pump that helps circulate coolant water through the reactor.

June 6, 2013 – The NRC issued a directive to 31 U.S. reactors to improve their systems for safely venting pressure from their containment building during potential accidents. Units 1 and 2 at the Berwick facility are affected by the directive.

June 14, 2013 – Unit 1 was returned to service after improvements were made addressing turbine issues

June 17, 2013 – The NRC issued a report on its inspection of issues relating to the proper licensing and notification procedures of some workers with medical conditions.

According to the report, the NRC said there were two apparent violations of NRC requirements. In addition, the NRC issued a green finding of very low safety significance due to failure to implement effective corrective actions.

The NRC report said one apparent violation found that four licensed operators developed disqualifying medical conditions that were not property evaluated by staff of PPL. Additionally, the report said PPL did not restrict the operators from performing licensed duties or obtain NRC approval to continue these duties by requesting conditional licenses. NRC inspectors also identified eight instances in which PPL failed to notify the NRC within 30 days after learning of changes in licensed operator medical conditions that involved performance disabilities or illness.

The second apparent violation stemmed from PPL's "failure to provide information to the NRC regarding medical examinations of licensed operators that was complete and accurate in all material respects," the NRC report said. "Specifically, PPL submitted three NRC licensed operator renewal applications and one initial license application, each of which certified the medical fitness of the applicants and that no restricting license conditions were necessary. However, the applicants, in fact, each had medical conditions that did not meet the minimum standards."

The NRC report notes that since 2008, plant licensee PPL had been issued three severity level IV violations and one severity level III violation related to the medical qualifications of its licensed operators. Because of these prior violations, the NRC said PPL staff reviewed the medical records of all of its licensed operators and submitted 10 medical updates on July 20, 2012. "Four of the 10 updates involved permanent changes in medical conditions that had not been previously submitted within the required 30 days," the NRC report said. "The other six submittals involved conditions that PPL initially stated were being provided to the NRC 'for information only.' However, the NRC independently identified … that three of these six 'information only' submittals actually involved operators with permanent changes in medical conditions. These medical conditions did not meet the minimum standards to conduct licensed activities

and, therefore, the affected operators should have been removed from licensed activities, or conditions added to their licenses before being permitted to continue watch standing."

In evaluating this problem, NRC determined that PPL had not provided adequate training for the medical review officer and examining physician at Berwick Hospital., "nor did the root cause assign corrective actions to address these issues." The report noted that PPL staff assigned corrective actions to include training of the medical review officer and nurse. The training was completed in November 2012 for the medical review officer, and in December 2012 for the nurse.

July 21, 2013 – Operators disconnected Unit 1 at the power plant facility to repair one of four valves controlling the amount of steam going into the turbine. The unit was returned to service later the same day.

Aug. 14, 2013 – The NRC completed a quarterly inspection of Units 1 and 2 for the period ending June 30. In the report, the NRC identified three findings of very low safety significance. "Separately," the report added, "a violation involving a failure to set secondary containment during operations with the potential to drain the reactor vessel was identified during the Unit 2 refueling outage from April 17 to May 7, 2013, and from May 10 to May 17, 2013.

One finding involved an inadequate operability determination for a synchroscope switch failure that rendered offsite power and four emergency diesel generators inoperable. This occurred early on May 7, 2013, resulting in all four emergency diesel generators and offsite power being inoperable from May 7 through May 10, 2013. The problem was placed in the plant's corrective action program.

The second finding involved an issue with PPL, the plant owner, not adequately incorporating acceptance criteria for heatup rates during a plant startup of Unit 2 on May 28, 2013. "Heatup rate was assessed as high as 105-degrees Fahrenheit for two different periods during the plant startup," the report said. "Approximately 15 hours later, following review of the data and technical specifications (TS) basis, PPL engineering concluded that the TS limit was exceeded."

The NRC noted that during a plant startup in June 2012, inspectors questioned whether PPL was adequately incorporating the heatup rate limits as prescribed. PPL has placed the matter into its correction action program.

A third finding involved PPL staff allowing unacceptable preconditioning by performing corrective maintenance work on April 25, 2013, before recording time responses of the reactor protection system and other functions for the turbine control valve. "The failure to collect as-found data could result in the inability to verify the operability of (structures, systems and components)," the report said. "In this case, the test of the subject pressure switch had exhibited decreasing margin and inconsistent performance during its previous surveillance test." The NRC report noted that procedures state that the "performance of

maintenance activities prior to a surveillance test with the intent of ensuring favorable test results is unacceptable preconditioning."

The other matter stemmed from actions from April 17 to May 17, 2013, when PPL performed operations with a potential for draining the reactor vessel without establishing a secondary containment. The NRC said it would issue no enforcement action for the violation.

Aug. 28, 2013 – The NRC decided not to impose a $70,000 fine against PPL Corp., owner of the Susquehanna nuclear power plants, despite identified violations regarding medical examinations and fitness of some workers. (See NRC report dated June 17, 2013.)

The NRC decided not to impose a fine because of corrective actions taken by PPL and because PPL had not been the subject of escalated enforcement action within the last two years.

Sept. 24, 2013 – Operators reconnected Unit 2 to the regional power grid after completing an inspection of turbines. Workers replaced a small number of turbine blades and performed other minor repairs.

Nov. 5, 2013 – The NRC updated its assessment of Unit 2 after completion of a quarterly review. The assessment related to unplanned scrams (shutdowns) at the facility.

The NRC said the third quarter review of Unit 2 "determined that the 'unplanned scrams with complications' performance indicator remained White" and that the unplanned scrams were greater that three per 7,000 critical hours over a four-quarter period.

The NRC noted that Unit 2 had unplanned scrams on Nov. 9, Dec. 16, and Dec. 19 in 2012, and Sept. 14, 2013.

Feb. 14, 2014 - The NRC issued a report of its quarterly inspection of Units 1 and 2 for the period October through December 2013. In the report, the NRC found three findings of very low safety significance treated as non-cited violations. There also was a licensee-identified violation determined to be of very low safety significance.

One finding involved procedures that could complicate an internal flooding event. Specifically, the NRC said procedures from PPL, the plant operator, "directed operators to enter a flooded room to assess the extent and source of the flooding," an action that could flood adjacent rooms. PPL entered the matter into its corrective action program.

The second finding was PPL's failure to ensure that all testing needed to demonstrate the performance of various systems was "identified and performed in accordance with written test procedures." Specifically, the NRC noted, PPL "did not ensure that secondary containment integrity was tested in all required configurations."

The third finding involved PPL's failure to have "temperature indication installed in some areas of the reactor building that are required to support assessment and determination of entry conditions into the fission product barrier emergency action levels."

The report added, "During the course of questioning, it was determined that nine of the 21 areas listed do not have installed temperature indication. Therefore, there would be no installed instrumentation to declare the appropriate emergency action level for a break that was not isolated in those rooms." PPL entered this matter into its corrective action program.

The PPL identified violation stemmed from improper authorization of hours for some senior reactor operators and reactor operators. Such personnel must perform a minimum of seven eight-hour shifts or five 12-hour shifts per calendar quarter to retain credentials. However, the NRC report said, PPL did not ensure that eight licensed senior reactor operators and two licensed reactor operators met those standards from April 1, 2010, to Dec. 31, 2013. "Specifically," the NRC report said, "the operators stood watch as members of a reactivity management team, which is not a credited shift crew position. These watches were incorrectly credited toward meeting their minimum required quarterly proficiency requirements."

The operators have been re-certified, and the plant revised its procedures "to identify the shift positions that are creditable for proficiency," the NRC report said.

The NRC said the issue matches a severity level III violation in its performance policy. "However," the report concluded, "after review of the responsibilities of the reactivity management team positions and that none of the operators were responsible for operational errors as a result of not standing the required number of proficiency watches and there were no other factors impacting their ability to hold a shift position, NRC management has determined this issue to be more appropriately evaluated as a severity level IV."

Feb. 12, 2014 – A secondary containment boundary door was found propped ajar at Unit 1 at 7:11 a.m. The last record of access to the area in question was about 45 minutes after midnight, so the potential duration of the door ajar was around 6.5 hours.

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March 4, 2014 – The NRC issued its annual assessment of Units 1 and 2. It determined that Unit 1 "operated in a manner that preserved public health and safety and met all cornerstone objectives." It also determined that Unit 1 was within the "Licensee Response Column" of its oversight process.

As for Unit 2, the NRC determined that performance during the most recent quarter was within the "Degraded Cornerstone Column" of its oversight process. That's because there

were two white performance indicators existing from events of unplanned scrams (shutdowns) in the fourth quarter of 2012 that moved Unit 2 from green (least severe) to white (more severe) category in terms of safety significance. While the plant licensee was showing progress in correcting the issue, Unit 2 "had an unplanned scram on Sept. 14, 2013, that resulted in crossing the green to white threshold…This performance indicator result, in conjunction with the earlier white performance indicator, moved Susquehanna Unit 2 to the degraded cornerstone column from the regulatory response column."

The NRC also said it planned to conduct a public meeting with the plant operator "in which we will review station performance."

The NRC added that it issued three severity level IV traditional enforcement violations associated with willfulness in 2013. The NRC said it would conduct inspection procedures to follow up on these violations.

June 25, 2014 – Operators began shutting down Unit 2 at the Susquehanna nuclear power plant to inspect the unit's turbine blades.

Officials said data from the extensive vibration monitoring equipment installed on the turbine indicate that a few blades may have developed small cracks.

Newly designed blades were recently installed at Unit 1 of the nuclear power facility. If an evaluation determines that those blades work efficiently, then similar blades will be installed on the Unit 2 turbine during its next scheduled refueling outage in the spring of 2015, the company said.

July 5, 2014 – Operators reconnected the Unit 2 reactor to the electrical grid after a shutdown to inspect some turbine blades.

The company said plant personnel replaced a number of blades and performed other maintenance activities while the plant was in shutdown mode

Aug. 1, 2014 – The NRC issued a report after completing an inspection at Units 1 and 2. In the report, the NRC noted "there were several continuing weaknesses associated with the implementation of certain aspects of (plant operator) PPL's corrective action program. Specifically, the inspectors determined that PPL did not consistently prioritize and evaluate issues commensurate with the safety significance of the identified problem:"

The report issued one notice of violation for a matter of very low safety significance, and it also reported three other findings of very low safety significance that were treated as non-cited violations.

The issue under citation found that "PPL did not follow and maintain a standard emergency classification and action level scheme. Specifically, PPL did not take timely corrective actions to provide an adequate means to measure temperature in nine out of 21 areas where reactor building temperatures are considered for the fission product barrier

degradation emergency action levels." The NRC said this failure dated back to October 2003.

"The lack of installed temperatures indication had the potential to impact declaration of all four emergency classifications; however, due to the redundancy within the fission product barrier matrix, the inspectors determined that it was reasonable that a general emergency would be declared in a timely manner. The inspectors determined that the lack of installed instrumentation could result in untimely declarations of a site area emergency, alert, or unusual event."

NRC said it is citing this violation because PPL "has failed to restore compliance or demonstrate objective evidence of plans to restore compliance at the first opportunity and in a reasonable period of time following discussion in a formal exit meeting on Jan 24, 2014, and documented" in a NRC inspection report of Feb. 14, 2014.

The three non-cited violation are as follows:

- PPL's "failure to take adequate corrective action for a condition adverse to quality involving the emergency service water and residual heat removal service water systems." The NRC said PPL failed to take timely corrective action to address carbon steel pipe wall thinning. "PPL did not take timely and appropriate corrective actions to assess the corrosion, address wetting conditions, and perform an appropriate operability determination that included assessing the piping degradation rate and calculate the minimum wall thickness to ensure that structural integrity requirements were maintained, " the NRC report said. The agency noted that PPL left the matter uncorrected from November 2010 to June 2014.

- PPL's "failure to complete and document initial operability determination in a timely manner in accordance with station procedures." From May 24, 2013, to June 6, 2014, the NRC said, "PPL failed to accomplish activities affecting quality in accordance with prescribed procedures." These procedures, it said, require the completion of initial operability screening within eight hours or the end of work shift, whichever comes first.

- PPL's failure to promptly correct an issue involved with the emergency service water supply lines. "Since April 30, 2009, the NRC said, "PPL had not established measures to assure a condition adverse to quality had been corrected. Specifically, PPL had not taken measures to eliminate pipe vibration and water hammer that are causing fatigue stress in the emergency service water supply lines" to various pump motor oil coolers

Aug. 13, 2014 – The NRC issued a report of its inspection for the three-month period ending June 30, 2014. In the report, the NRC identified one non-cited violation, and noted that plant operator PPL found a violation of very low safety significance.

The NRC finding involved PPL's failure to implement timely actions "to address the extent of a previously identified inoperable condition." .

The PPL finding involved a failure to control the concentration of airborne radioactive materials during weld preparation on reactor water cleanup piping on April 27, 2014. "A radiation protection technician monitoring a continuous air monitor noticed increasing airborne radioactivity and subsequently stopped the work," the NRC report said. "This failure to use, to the extent practicable, process or engineering controls led to a worker receiving an unplanned, unintended uptake of approximately 11 millirem." The violation was entered into PPL's corrective action plan.

Sept. 6, 2014 – Operators at the plant disconnected Unit 2 from the power grid to inspect its turbine blades. Data showed that a few of the blades may have developed small cracks.

Sept. 15 – The Unit 2 reactor was reconnected to the electrical grid. During the shutdown (see Sept. 6, 2014), workers replaced one row of blades, although only a small number were found to have indications of cracking. PPL has already installed newly designed blades at Unit 1, and similar blades are to be installed at Unit 2 during the next scheduled refueling in the spring of 2015.

June 22, 2015- NRC Finalizes 'White' Inspection Finding for Susquehanna Nuclear Plant, Resulting in Additional Oversight

The Nuclear Regulatory Commission will increase its level of oversight at the Susquehanna nuclear power plant, in Salem Township (Luzerne County), Pa., as a result of the finalization of a "white" (low to moderate safety significance) inspection finding and related violation in the area of emergency preparedness. NRC inspectors, during an in-depth review of plant drill scenarios, identified a concern with how plant personnel would determine the start of a 15-minute clock for emergency assessment and declaration for a scenario involving the potential loss of primary containment. (Both of the plant's units have primary and secondary containments to prevent the release of radioactivity to the environment following an accident.) The inspectors found that Susquehanna's interpretation of the 15-minute assessment and classification period degraded plant personnel's ability to make a timely "Site Area Emergency" declaration in certain cases. (A Site Area Emergency is the third tier of the four levels of emergency classification used by the NRC.)

Specifically, the plant's owner, Susquehanna Nuclear LLC, interpreted the requirements as having the 15-minute clock begin when operator actions were, or were expected to be, unsuccessful in halting reactor coolant system leakage rather than when indications of a

leak's onset are available to plant operators, signaling that an emergency action level has been exceeded.
"It's important during an emergency situation that state, county and local officials are provided with information in a timely manner to assess the situation and implement protective actions, if warranted," NRC Region I Administrator Dan Dorman said. "While the probability of an event of this magnitude is extremely low, this finding points to a weakness in that area that the company will need to address." Prior to making a final enforcement decision, the NRC offered the company the opportunity to accept the finding without any formal response or provide additional information in a Regulatory Conference or in writing. The company submitted a written response dated May 15 in which it acknowledged the finding but stated that training and programs already in place prior to the finding would have ensured the impact of the issue would have been relatively minor.

The NRC considered the information but determined the finding was appropriately characterized as "white." The finding also involved a violation of NRC requirements regarding maintaining an emergency plan that meets federal standards. The NRC, in response to the "white" finding, will perform a supplemental inspection at the plant to ensure the company has completed a thorough root-cause evaluation of the issue and put in place effective corrective actions. Subsequent to the issuance of the preliminary "white" finding, the Susquehanna emergency action level basis was revised to correct the declaration timeliness issue

May 1, 2018 - Letter dated May 1, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Susquehanna Steam Electric Station – Integrated inspection report 05000387/2018001 and 5000388/2018001

On March 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Susquehanna Steam Electric Station (SSES), Units 1 and 2. On April 13, 2018, the NRC inspectors discussed the results of this inspection with Derek Jones, Plant Manager, and other members of your staff. The results of this inspection are documented in the enclosed report.

No NRC-identified or self-revealing findings were identified during this inspection. NRC inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the NCV, you should provide a response within
30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at Susquehanna.

Inspection Report – inspection dates January 1, 2018 to March 31, 2018

1. Condition Prohibited by Technical Specifications Due to a Loose Terminal Block Associated with Primary Containment Isolation Valves
2. Loss of Secondary Containment Zone 3 Due to Fan Trip

Licensee Identified Non-Cited Violation

1. Violation: Susquehanna Unit 1 TS section 5.4.1 requires that "written procedures shall be implemented covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978." Susquehanna's implementing instruction NDAP-QA- 0503, General Housekeeping, Transient Material and Internal Cleanliness, Revision 45 implements aspects of the Regulatory Guide administrative procedures requirements. NDAP- QA-0503 section 6.1.5.h requires, in part, that "transient equipment shall be located such that it will not impact safety related equipment during a seismic event. Locate all items at a distance greater than the height of the item from safety related equipment." Additionally, TS 3.5.1 Action Statement I directs immediate entry into Limiting Condition for Operation (LCO) 3.0.3 if one core spray subsystem is inoperable with one low pressure coolant injection (LPCI) subsystem inoperable. LCO 3.0.3 requires action to be taken within 1 hour to place the unit in MODE 2 within 7 hours and MODE 3 within 13 hours.

    a. Contrary to the above, from December 1, 2017 to December 3, 2017, Susquehanna staged a 540 pound, ten foot long replacement pipe on 34 inch high stands within 34 inches of the safety related Unit 1, "B" Core Spray room cooler. Susquehanna concluded that the room cooler was inoperable because the pipe could have reasonably contacted and damaged the flexible conduit for the power cable to the room cooler during a seismic event. Additionally, from 7:48 a.m. on December 2, 2017 to 1:35 p.m. on December 3, 2017, maintenance was performed on the Unit 1, division 2 LPCI swing bus motor generator which rendered the division 2 LPCI system inoperable. During this time, Susquehanna did not perform the required actions of LCO 3.0.3 and remained in MODE 1.
    b. Significance/Severity Level: This violation is of very low safety significance (Green), since this finding did not represent a loss of system, a loss of function of at least a single train for greater than its TS allowed outage time, or a loss of a non-TS train.
    c. Corrective Action Reference(s): CR-2017-20227; CR-2018-01717; CR-2018-02250

May 15, 2018 - Letter dated May 15, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Susquehanna Steam Electric Station, Units 1 and 2 information request for the cyber-security inspection notification to perform inspection 05000387/2018403 and 05000388/2018403

On October 15, 2018, the U.S. Nuclear Regulatory Commission (NRC) will begin a team inspection in accordance with Inspection Procedure (IP) 71130.10P "Cyber-Security," issued May 15, 2017 at your Susquehanna Steam Electric Station, Units 1 and 2 (Susquehanna). The inspection will be performed to evaluate and verify your ability to meet full implementation requirements of the NRC's Cyber-Security Rule, Title 10, *Code of Federal Regulations* (CFR), Part 73, Section 54, "Protection of Digital Computer and Communication Systems and Networks." The onsite portion of the inspection will take place during the weeks of

October 15-19, 2018, and October 29 – November 2, 2018. Experience has shown that team inspections are extremely resource intensive, both for the NRC inspectors and the licensee staff. In order to minimize the inspection impact on the site and to ensure a productive inspection for both parties, we have enclosed a request for documents needed for the inspection. These documents have been divided into four groups.

The first group specifies information necessary to assist the inspection team in choosing the focus areas (i.e., "sample set") to be inspected by the cyber security Inspection Procedure. This information should be made available via compact disc and delivered to the regional office no later than July 23, 2018. The inspection team will review this information and, by
August 20, 2018, will request the specific items that should be provided for review.

The second group of additional requested documents will assist the inspection team in the evaluation of the critical systems and critical digital assets (CSs/CDAs), defensive architecture, and the areas of your plant's Cyber Security Program selected for the cyber security inspection. This information will be requested for review in the regional office prior to the inspection by September 17, 2018.

The third group of requested documents consists of those items that the inspection team will review, or need access to, during the inspection. Please have this information available by the first day of the onsite inspection, October 15, 2018.

The fourth group of information is necessary to aid the inspection team in tracking issues identified as a result of the inspection. It is requested that this information be provided to the lead inspector as the information is generated during the inspection. It is important that all of these documents are up to date and complete in order to minimize the number of additional documents requested during the preparation and/or the onsite portions of the inspection.

The lead inspector for this inspection is Jigar Patel. We understand that our regulatory contact for this inspection is Mr. Charlie Manges of your organization.

November 19, 2018 - Letter dated November 19, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Susquehanna Steam Electric Station – Evaluated

emergency preparedness exercise inspection report 05000387/2018501 and 05000388/2018501

On October 19, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Susquehanna Steam Electric Station (SSES), Units 1 and 2. The NRC inspectors discussed the results of this inspection with you and members of your staff on October 30, 2018. The results of this inspection are documented in the enclosed report.

No NRC-identified or self-revealing findings were identified during this inspection. NRC inspectors documented one licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the NCV, you should provide a response within
30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at SSES.

Inspection results – licensee identified non-cited violation

1. Violation: 10 CFR 50.54(q)(2) requires, in part, that a licensee shall follow and maintain the effectiveness of an emergency plan that meets the requirements in Appendix E to this Part and, for nuclear power reactor licensees, the planning standards of §50.47(b). 10 CFR 50.47(b)(4) requires, in part, that a standard emergency classification and action level (EAL) scheme is in use by the licensee.
    a. Contrary to the above, from December 2016 to the present, Susquehanna did not have sufficient guidance contained in procedures to assess the availability of the main condenser to support the containment barrier such that a site area emergency would be consistently declared in a timely manner upon loss of two fission product barriers.
    b. Significance/Severity Level: The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609, Appendix B. The inspectors determined that this finding was similar to the example in Table 5.4-1, Significance Examples §50.47(b)(4), which states "[a]n EAL has been rendered ineffective such that any Site Area Emergency would not be declared for a particular off-normal event, but because of other EALs, an appropriate declaration could be made in a degraded manner (e.g., delayed)." Thus, the inspectors determined that the finding was of very low safety significance (Green).
    c. Corrective Action Reference: CR-2018-14650

January 3, 2019 - Letter dated January 3, 2019, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Susquehanna Steam Electric Station, Units 1 and 2 – safety

evaluation regarding implementation of hardened containment vents capable of operation under severe accident conditions related to order EA-13-109 (CAC Nos. MF4364 and MF4365; EPID No. L-2014-JLD-0055)

On June 6, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13143A334), the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-13-109, "Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," to all Boiling Water Reactor licensees with Mark I and Mark II primary containments. The order requirements are provided in Attachment 2 to the order and are divided into two parts to allow for a phased approach to implementation. The order required each licensee to submit an Overall Integrated Plan (OIP) for review that describes how compliance with the requirements for both phases of Order EA- 13-109 would be achieved.

By letter dated June 26, 2014 (ADAMS Package Accession No. ML14178A619), Susquehanna Nuclear, LLC (the licensee) submitted its Phase 1 OIP for Susquehanna Steam Electric Station, Units 1 and 2 (SSES, Susquehanna) in response to Order EA-13-109. At 6-month intervals following the submittal of the Phase 1 OIP. the licensee submitted status reports on its progress in complying with Order EA-13-109 at Susquehanna, including the combined Phase 1 and Phase 2 OIP in its letter dated December 23, 2015 (ADAMS Accession No. ML15362A528). These status reports were required by the order, and are listed in the enclosed safety evaluation. By letters dated May 27, 2014 (ADAMS Accession No. ML14126A545), and August 10, 2017 (ADAMS Accession No. ML17220A328), the NRC notified all Boiling Water Reactor Mark I and Mark II licensees that the staff will be conducting audits of their implementation of Order EA-13-109 in accordance with NRC Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195). By letters dated April 1, 2015 (Phase 1) (ADAMS Accession No. ML15090A300), August 25, 2016 (Phase 2) (ADAMS Accession No. ML16231A509), and October 5, 2017 (ADAMS Accession No. ML17272A733), the NRC issued Interim Staff Evaluations (ISEs) and an audit report, respectively, on the licensee's progress. By letter dated June 26, 2018 (ADAMS Accession No. ML18179A221), the licensee reported that Susquehanna, Units 1 and 2 are in full compliance with the requirements of Order EA-13-109 and submitted a Final Integrated Plan (FIP) for Susquehanna, which was supplemented by letter dated November 27, 2018 (ADAMS Accession No. ML18332A263).

The enclosed safety evaluation provides the results of the NRC staff's review of Susquehanna's hardened containment vent design and water management strategy for Susquehanna. The intent of the safety evaluation is to inform Susquehanna on whether or not its integrated plans, if implemented as described, appear to adequately address the requirements of Order EA-13-109. The staff will evaluate implementation of the plans through inspection, using Temporary Instruction 2515-193, "Inspection of the Implementation of EA-13-109: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions"

(ADAMS Accession No. ML17249A105). This inspection will be conducted in accordance with the NRC's inspection schedule for the plant.

Safety Evaluation Introduction

The earthquake and tsunami at the Fukushima Dai-ichi nuclear power plant in March 2011 highlighted the possibility that extreme natural phenomena could challenge the prevention, mitigation and emergency preparedness defense-in-depth layers already in place in nuclear power plants in the United States. At Fukushima, limitations in time and unpredictable conditions associated with the accident significantly challenged attempts by the responders to preclude core damage and containment failure. During the events at Fukushima, the challenges faced by the operators were beyond any faced previously at a commercial nuclear reactor and beyond the anticipated design basis of the plants. The U.S. Nuclear Regulatory Commission (NRC) determined that additional requirements needed to be imposed at U.S. commercial power reactors to mitigate such beyond-design-basis external events (BDBEEs) during applicable severe accident conditions.

On June 6, 2013 [Reference 1], the NRC issued Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions". This order requires licensees to implement its requirements in two phases. In Phase 1, licensees of boiling-water reactors (BWRs) with Mark I and Mark II containments shall design and install a venting system that provides venting capability from the wetwell during severe accident conditions. In Phase 2, licensees of BWRs with Mark I and Mark II containments shall design and install a venting system that provides venting capability from the drywall under severe accident conditions, or, alternatively, those licensees shall develop and implement a reliable containment venting strategy that makes it unlikely that a licensee would need to vent from the containment drywall during severe accident conditions.

By letter dated June 26, 2014 [Reference 2], Susquehanna Nuclear, LLC (the licensee) submitted a Phase 1 Overall Integrated Plan (OIP) for Susquehanna Steam Electric Station, Units 1 and 2 (SSES, Susquehanna) in response to Order EA-13-109. By letters dated December 23, 2014 [Reference 3], June 23, 2015 [Reference 4], December 23, 2015 (which included the combined Phase 1 and Phase 2 OIP) [Reference 5], June 29, 2016 [Reference 6], December 19, 2016 [Reference 7], June 15, 2017 [Reference 8], and December 12, 2017 [Reference 9], the licensee submitted 6-month updates to its OIP. By letters dated May 27, 2014 [Reference 10], and August 10, 2017 [Reference 11], the NRC notified all BWR Mark I and Mark II licensees that the staff will be conducting audits of their implementation of Order EA-13-109 in accordance with NRG Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC- 111, "Regulatory Audits" [Reference 12]. By letters dated April 1, 2015 (Phase 1) [Reference 13], August 25, 2016 (Phase 2) [Reference 14], and October 5, 2017 [Reference 15], the NRG issued Interim Staff Evaluations (ISEs) and an audit report, respectively, on the licensee's progress. By letter dated June 26, 2018 [Reference 16], the licensee reported that full compliance with the requirements of Order EA-13-109 was achieved and submitted its Final Integrated Plan (FIP), which was supplemented by letter dated November 27, 2018 [Reference 17].

Safety Evaluation Conclusion

In June 2014, the NRC staff started audits of the licensee's progress in complying with Order EA-13-109. The staff issued an ISE for implementation of Phase 1 requirements on April 1, 2015 [Reference 13], an ISE for implementation of Phase 2 requirements on August 25, 2016 [Reference 14], and an audit report on the licensee's responses to the ISE open items on October 5, 2017 [Reference 15]. The licensee reached its final compliance date on April 30, 2018 and has declared in letter dated June 26, 2018 [Reference 16] that Susquehanna Steam Electric Station, Units 1 and 2 are in compliance with the order.

Based on the evaluations above, the NRC staff concludes that the licensee has developed guidance that includes the safe operation of the HCVS design and a water management strategy that, if implemented appropriately, should adequately address the requirements of Order EA-13-1 09.