

Incident Chronology at Peach Bottom Atomic Power Plant: 1974- 2012

Philadelphia Electric's (PECO) applied for a license to operate the Peach Bottom Atomic Power Station in late-July, 1960. The application was approved by the Atomic Energy Commission. Peach Bottom was a 40 megawatt, High Temperature Graphite Moderated reactor that operated from 1966-1974.

Peach Bottom 2 & 3 , are 1,065 megawatt Boiling Water Reactor designed by General Electric and engineered by Bechtel. Both reactors began operation in July, 1974, but had their licenses extended by the Nuclear Regulatory Commission (NRC) and are expected to operate through 2034. The Nuclear Regulatory Commission (NRC) and the Institute for Nuclear Power Operations (INPO) have clearly demonstrated that Philadelphia Electric's (PECO), renamed Exelon in 2000, performance has historically been lackadaisical and sub-par. In order to put Peach Bottom's operating history into perspective, it is necessary to review PECO's plant legacy.

According to Eric Epstein, Chairman, TMI-Alert: "Managerial problems further aggravate and compound the inherent flaws with Peach Bottom's reactor and containment structure." The reactors at Peach Bottom are General Electric (GE) Boiling Water Reactors (BWR). Epstein noted, "The GE-BWR is an obsolete design no longer built or constructed. Many in the industry feel it is inferior to Pressurized Water Reactors. Obviously the age of the reactors, and the subsequent embrittlement that ensues, further erode the margin of safety."

Peach Bottom's Mark 1 containment structure has been demonstrated by Sandia Laboratories to be vulnerable during a core melt accident. Epstein explained: "The containment is likely to fail during a core melt accident [like Three Mile Island] allowing radiation to escape directly into the environment." Nuclear industry officials say the problem with the Mark 1 is that it is too small and wasn't designed to withstand the high pressure it is supposed to resist.

1974 - Peach Bottom came on line at a cost of \$375 per kilowatt.

March, 1983 - A spill of 25,000 gallons of radioactive water was reported at the plant.

June 1983 - PECO was fined \$40,000 by the NRC for a valve violation.

July 1983 - Philadelphia Electric identified cracks in their cooling pipes.

1983 -1987 - PE was issued a number of violation notices that cost the

utility \$485,000 in civil penalties. All the violations involved failure of personnel to follow procedures.

Examples of violations include: workers entering high radiation areas without required radiation protection; improperly controlling access keys to the plant's high radiation areas; discrepancies in workers' radiation work permits; improper packing of low level radioactive wastes; leaving air lines open while the reactor was producing power between August 12 and September 10, 1982. With these lines open the containment could not be sealed against radiation escape in the event of an accident; allowing excessive leakage from the containment building; improperly setting instrument valves which made the plant incapable of providing back-up signals to automatically shut the reactor down in the event of an accident (Lancaster Independent Press, April, 1988).

Ronald Haynes, the NRC's regional administrator, stated, "These violations demonstrate the need for improvements in the control of operational activity."

June 19, 1984 - The NRC cited PECO for five alleged violations of technical specifications at Units 2 and 3. The NRC also proposed a \$30,000 fine.

Three of the alleged violations "involved exceeding the maximum allowable reactor heatup rate, allowing pressure in the reactor to go beyond the limit specified for a given temperature and failing to recognize that a control rod was inserted into the reactor at a rate slower than required."

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The other two violations "involved changes to facility procedures in 1977-1979 that were not properly reviewed and three instances in 1980 and 1983 of failures to follow procedures." These violations were identified by an inspector between January 5 and 20, 1984 (United States Nuclear Regulatory Commission, Office of Public Affairs Region I, June 19, 1984).

December 1984 - An Institute of Nuclear Power Operations (INPO) evaluation found "clear evidence of declining performance". In

addition, the report claimed that these problems were "longstanding."

- 1985 - An NRC inspector observed a Peach Bottom operator dozing at the controls. No safety violation was charged.

June 1985 - The plant was shut down due to mechanical problems.

July 26, 1985 - PECO was accused of pressuring the United Way to deny eligibility to Del-AWARE Unlimited, Inc., "a group that is lobbying against the water-diversion project that would supply the utility's Limerick power plant...I wouldn't go as far as to use the word *threatened*, but the message was clear. PE would stop funding if Del-AWARE were made eligible under the donor-option program." (The

Philadelphia Inquirer, Front Page, Friday, July 26, 1985.)

October 1985 - A emergency evacuation drill turned into a serious incident when Unit-2 reactor's water level dropped.

October 1985 - PECO is fined by the Occupational Safety and Health Administration (OSHA) for safety violations leading to the death of an **employee**.

December 1985 - An INPO study (as reported by The Nuclear Monitor) concluded that PECO's performance continued to decline. A subsequent letter written in January by Zack Pate, President of INPO, to PECO Chairman John Everett, said "standards of performance at the station are unacceptably low."

Problems were identified in operations and maintenance, radiological protection, material condition and housekeeping. INPO also identified several non-licensed operators reading unauthorized materials. A total of 431 shortfalls were identified; 141 involved personnel performance. Pate noted, "and "we ... have considerable concern that the station's substandard radiological control practices may lead to the spread of contamination off-site, or some other serious radiological event.

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Pate concluded, "From my assessment, this pattern will not change, and personnel performance at Peach Bottom will not improve, until you personally acknowledge the need and communicate the need, for real change to your organization."

- February 1, 1986 to May 31, 1987 - The SALP for this period indicated PECO's performance was "unacceptable" because of the operators' inattentiveness and management's "inability to identify and correct operator conduct in other areas."

Among the incidents cited by the NRC: security guards were overworked, and one guard was found asleep on the job; 36,000 gallons of "mildly radioactive water" leaked into the Susquehanna River; PECO mislaid data on radioactive waste classification causing misclassification of a waste shipment; at the turbine building on March 4, 1987, Unit 3 a major fire occurred at the maintenance cage.

March 1986 - A checking system was bypassed and automatic backups were bypassed by a supervisor during an inappropriate withdrawal of a control rod from the reactor core.

April 1986 - An explosion and fire occurred at the plant's substation for emergency power.

June 1986 - The NRC's annual report concluded that Peach

Bottom was "operated by well qualified individuals with a positive attitude toward their positions for nuclear safety."

June 1986 - Unit-2 was shut down when a cooling system pipe sprang a leak.

June 11, 1986 - A \$200,000 fine for failing to pay attention to detail was issued. The incident involved the withdrawal of control rods. A highlevel, NRC administrator noted that these violations indicated a continued "pattern of inattention to detail" and "a general complacent attitude." The original fine was set at a \$100,000, but doubled because of PE's history. In addition, the NRC reported 17 violations.

July 16, 1986 - While testifying before Congressman Markey's Committee, the NRC revealed that Peach Bottom was one of the 10 most hazardous plants in the country. The underlying reason appeared to be that PECO's attention was focused on the construction and startup of Limerick, rather than the safe operation of Peach Bottom.

August 1986 - The NRC reported that there were 26 cracks in Peach Bottom's two operating reactors (Units 2 and 3).

December, 1986 - The NRC reported that a health physicist was illegally fired for whistleblowing.

February 18, 1987 - An NRC study said Peach Bottom's reactors were more likely to release radiation in the event of a core-melt accident.

March 4, 1987 - At the turbine building at Unit 3 a major fire occurred at the maintenance cage. The NRC identified several precursor problems with fire protection on the following dates: April 10, May 30 and November 1, 1985. Another related problem was documented on January 19, 1990.

March 15, 1987 - The NRC levied a \$50,000 against PECO for illegally dismissing a worker who was exposed to radioactive gas.

March 31, 1987 - Peach Bottom was indefinitely shutdown. Operators were found sleeping on the job, playing video games, engaging in rubber band and paper ball fights, and reading unauthorized material.

May 1987 - The NRC reported that areas of high radioactivity were not properly marked.

May 1987 - An NRC inspection report revealed 33 operator errors in the past two years as well as cases of operator inattention and poor reaction.

July 15, 1987 - Senior Health Physics Technician, George Fields, filed a lawsuit against PECO for exposing him to dangerous levels of radioactive gas.

September 1987 - An INPO evaluation ranked the plant in the lowest category.

September 30, 1987 - A contractor employee attempted to enter a protected site while intoxicated. Later cocaine was found in the parking lot and in the guard's bathroom.

October 1987 - An INPO visit (as reported by The Nuclear Monitor) found that since shutdown, "little clearly demonstrable action has been taken regarding corporate management's accountability for conditions at the station."

"Control of drawings, procedures, and other documents used by operations personnel was identified as a problem at Peach Bottom ... in 1980. During the recent plant evaluation, 22 of 23 drawings reviewed in the radwaste control room were out of date by as many as 15 revisions. Outdated or unapproved drawings and procedures were also noted at various locations in the turbine building and the auxiliary room."

"[T] here were more than 6,000 open maintenance requests, 300 outstanding money tickets (minor maintenance requests), and 1,200 additional items requiring maintenance on various lists ... 586 preventive maintenance activities ... have been outstanding since June 1986."

October 5, 1987 - A loss of Power at Unit-3 resulted in a containment isolation and a loss of shutdown cooling.

October 8, 1987 - The NRC deferred a review of PECO's reorganization plan because of their failure to address corporate weaknesses.

October 9, 1987 - Philadelphia Electric announced a corporate reorganization plan.

October 29, 1987 - The forced shutdown is costing Philadelphia Electric an additional \$5 million a month for replacement electricity. ("Patriot News".)

November, 1987 - A report published by Public Citizen revealed that \$400 million was spent on repairs at Peach Bottom between 1981 and 1985. This amount was the highest expended at any of

the nation's nuclear power plants.

November, 1987 - The FBI discovered a drug distribution ring at Peach Bottom. (For more details see: January 8, 1988; February, 1988; May 2, 1988; November, 1989; and, May 10, 1999.)

January 8, 1988 - A maintenance sub-foreman pleaded guilty to involvement in a conspiracy to distribute methamphetamine. He is one of six who were indicted last year in a conspiracy to distribute methamphetamine. (For more details see: November, 1987; May 2, 1988; and November, 1989.)

January 11, 1988 - INPO President Zack Pate strongly criticized Philadelphia Electric's management and their revised reorganization plan.

Pate noted that, "The fundamental approach to nuclear operational management at Philadelphia Electric Company has not changed and is unlikely to change noticeably in the foreseeable future." He added, "success ultimately depends on the individual managers in key line positions. Since for the most part, the same managers who have been ineffective in this area for years are in the key line positions in the new organization, substantial improvement is unlikely." Pate concluded, "Major changes in the corporate culture at PECO are required. The recently announced reorganization plan will not achieve this" (The Nuclear Monitor, February 22, 1988, pp.1-2).

January 26, 1988 - Governor Robert P. Casey formally petitioned the NRC for public hearings on PECO's management.

January 27, 1988 - PECO reportedly lost \$58 million due to the NRC's shutdown of Peach Bottom. Earnings per share were shaved from \$2.60 a share in 1986 to \$2.33.

February 3, 1988 - John H. Austin resigned as president of PE after a unusually critical report by the Institute of Nuclear Power Operations (INPO) was published. The report asserted that Peach Bottom "was an embarrassment to the industry and to the nation." Zack T. Pate, president of INPO, added, "The grossly unprofessional behavior by a wide range of shift personnel ... reflects a major breakdown in the management of a nuclear facility."

February, 1988 - The PUC ordered PE to reduce rates by a \$37 million a year until Peach Bottom is allowed to restart.

February, 1988 - Four PECO employees were indicted for allegedly distributing drugs at Peach Bottom. PECO maintained that the workers

were not working in areas affecting safety. (For more details see: November, 1987; January 8, 1988; May 2, 1988; November, 1989; and, May 10, 1999)

February 9, 1988 - In a editorial, The Patriot News concluded: "PECO's management failed in that basic responsibility to the company's stockholders, to the federal regulations they are required to abide by and the public that was put at risk by this slipshod performance."

March 17, 1988 - PE officials acknowledged that the plant will not be ready for restart until the "...fall frame time." This prediction would mean that the plant would be shut down for "at last 18 months, costing the company \$125 million, based on its current rate of expenditures for replacement power and a penalty imposed by the state Public Utility Commission" (The Patriot News, March 17, 1988, p.B-9).

March 29, 1988 - The Public Citizen's Critical Mass Energy Project rated Peach Bottom as one of the poorest rated plants in the country based on the following criteria: "average lifetime operating efficiency; 1987 operating efficiency; average operating and maintenance costs during 1985 and 1986; average capital additions costs from 1982 to 1986; most recent SALP ratings; number of scrams during 1985 and 1986; average annual fines from 1985 to 1987; worker exposures from 1984 through 1986; LERs in 1985 and 1986; potential accident consequences derived through the CRAC-2 computer code" (The Nuclear Monitor, May 2, 1988, p.6).

An NRC's evaluation of the plant's management performance rated Peach Bottom as the *eighth worst in the country*.

April 7, 1988 - The Janny Montgomery Scott basic report on Philadelphia Electric noted that PE still faces many hurdles, including: "...further intense scrutiny from the regulatory commissions, and the uncertainty of future rate relief. Accordingly, the stock remains suitable primarily for investors willing to assume above-average risk." And, "Certainly, the extensive nature of the management reorganization will require time to evolve, but many deep-rooted problems such as those initially developed at Peach Bottom are corrected now."

April 13, 1988 - J. Lee Everett "retired" as Chairman and Chief Executive Officer of Philadelphia Electric as a direct result of the harsh criticism from a January 12, 1988 report released by the Institute of Nuclear Power Operations (Refer to February 3, 1988).

May, 1988 - Bessie Howard filed a complaint with the United States Department of Labor alleging that she was fired "in retaliation for her identification of safety problems relating to security at Peach

Bottom." Beginning on January 24, 1988, Mrs. Howard reported that another security guard was sleeping on the job. She continued to report the matter until she was fired On March 16, 1988, by Burns Security, the security contractor for Peach Bottom. She was classified "status nine" and prohibited from working at other nuclear power plants or government facilities.

- A report issued by the NRC indicated "that security personnel were forced to work excessively long hours, sometimes up to 12 hour shifts; were not given meal breaks, and were required to remain at posts for extended periods of time without being rotated to other posts, a violation of NRC regulations" (York Daily Record, May 1988).

May 2, 1988 - Four Peach Bottom employees were charged with conspiracy to distribute methamphetamine at the plant and elsewhere. Thirteen people, most of whom work at Peach Bottom, have been charged with drug-trafficking as a result of an FBI investigation. (For more details see: November, 1987; January 8, 1988; February, 1988; November, 1989; and May 10, 1999.)

Spring 1988 - A cot for sleeping on the job was removed from an area located near the control room, and the NRC acknowledged knowing of its presence prior to its removal.

June 6, 1988 - The NRC warned that the "effort to make sure the Peach Bottom nuclear power plant is run safely is by no means a sure thing " (Centre Daily News, June 1, 1988, A-6).

June 16, 1988 - The General Counsel to the Governor of Pennsylvania submitted comments on the Revised Plan for Restart of Peach Bottom Atomic Power Station and the Actions of Philadelphia Electric Company Leading Up to and Succeeding the March 31, 1987 Shutdown Order of the Nuclear Regulatory Commission.

Counsel noted, "The plan on the whole remains too general to permit proper evaluation. Some of the most crucial areas, for example, the responsibility for individual operators and those managers who are retained for previous misconduct and the justifications for their retention, remain undisclosed. Certain basic problems, such as drug abuse and previous sanctions against whistleblowers, are either not addressed at all or are insufficiently addressed. Independent assessment organizations need even greater independence and must satisfactorily demonstrate reanalysis of problem reports (such as Significant Operating Events and vendor reports) that may have triggered inadequate responses over the last few years. Finally, and most importantly, the reforms generally proposed must be reduced to specific, clear, verifiable commitments and proper avenues outlined for verification."

July 27, 1988 - Public Service Enterprise Group Incorporated and its subsidiary Public Service Electric and Gas Company filed an action in the United States District Court to recover damages resulting from the NRC's shutdown of Peach Bottom. On the same day in the same court, Atlantic City Electric Company and Delmarva Power and Light Company filed similar suits against Philadelphia Electric. The suits allege that PECO breached its contract under the Owners Agreement. Several tort claims were also filed, however no dollar amounts were specified. (Based on information from Philadelphia Electric Company's "Report to Shareholders Third Quarter 1988.") (See April 4, 1992 for settlement agreement.)

August, 1988 - Peach Bottom's security contractor was replaced due to incompetence.

August 11, 1988 - The NRC proposed fining PECO \$1.25 million for "management problems that resulted in a forced shutdown of the company's Peach Bottom nuclear plant." In addition, the NRC proposed fining 33 reactor operators for sleeping on the job, playing video games, engaging in spit ball battles, and other unprofessional activities. Fines of \$500 to \$1,000 were recommended. PECO spokesperson Williams Jones disclosed that the company "has lost more than \$90 million since the NRC ordered Peach Bottom shutdown..." (Patriot News, August 12, 1988).

August 17, 1988 - Joseph Rhodes, Jr., a member of the Pennsylvania Public Utility Commission, suggested that a deal between PECO and the NRC might have been made in order to get Peach Bottom back on line. In letters to NRC Chairman Lando Zech and PECO CEO Joseph Paquette, Jr., Rhodes stated, "One could draw the conclusion that by announcing these fines, the NRC has cleared the way for PECO to receive expedited approval of its Peach Bottom restart plan"(Patriot News, August 17, 1988).

September 2, 1988 - An electrician, working in the low-level radioactive area, " ... fell from scaffolding into a puddle of radioactive water...suffering slight contamination..." (The Patriot News, September 2, 1988).

September 15, 1988 - NRC Chairman Lando Zech told senior management officials of PECO, "I'm not going to accept what you say today and be anywhere near ready to authorize this plant." Zech noted, "Your operators certainly made mistakes, no question about that. Your corporate management problems are just as serious." Zech added, "The fact that we have a situation like this existing at any plant in the country is very serious. We're responsible to the American people. We can't have plants with this much inattentiveness to anything."

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William Russell, regional administrator, told plant officials that unacceptable levels of contamination exist in three pump rooms that are part of Peach Bottom's water cleanup system. He said the radiation in those locations is "some of the worst I've seen" (The Evening News, September 15, 1988, B 3.)

September 23, 1988 - The Board of Directors voted to take no action to prevent the progress of shareholder lawsuits against former chairman and CEO, James L. Everett, III, and former President and CEO, John H. Austin, Jr., "for claims alleging mismanagement which resulted in the shutdown..." of Peach Bottom (Philadelphia Electric Company, Report to the Shareholders, Fourth Quarter, 1988.)

September 26, 1988 - Governor Casey, through the Pennsylvania Department of Environmental Resources (Pa DER), ordered PECO and INPO to release files on recent investigations of the plant. Governor Casey noted, "We made it clear there were certain kinds of information we needed to evaluate our concerns, but after months of being unable to persuade PECO to provide us with that information on its own, we had to go ahead and issue these orders." (Philadelphia Inquirer, September 27, 1988.)

September 27, 1988 - A jury awarded \$130,000 to four pipe fitters who claimed they have health problems as a result of being exposed to asbestos at several construction sites including Peach Bottom, Three Mile Island and Glatfelter paper mill.

September 28, 1988 - Senator William Lincoln of Fayette announced that hearings should be required before a Peach Bottom restart.

October 14, 1988 - PE appealed the Pa DER order to give the Casey administration access to internal documents relating to restarting Peach Bottom.

October 19, 1988 - INPO "provided observations on its corporate evaluation conducted in October and on its plant evaluation conducted in September" (Philadelphia Electric Company, Report to the Shareholders, Fourth Quarter, 1988.)

INPO noted "that the operators needed additional simulator training to properly respond to some plant events, that management and shift supervision must take more effective action to correct significant operational and administrative problems, that administrative provisions must be upgraded to better help control room operators readily and accurately determine plant status, and that improvements are needed in communicating and assessing performance standards."

October 21, 1988 - PECO announced a revision in their restart schedule. The projected date for restart was pushed back to the second quarter in 1989.

October 27, 1988 - A recent safety evaluation conducted by the NRC was favorable for restart, according to PECO spokesman Neil McDermott. "What it [the report] is saying is that our plan addresses the problems which led to the shutdown, and that actions laid out in the plan are appropriate to correct those root causes." He added, "Now, of course, the NRC will continue to monitor the effectiveness of the implementation" (The Patriot News, October 22, 1988, B 9.)

November 17, 1988 - The NRC fined PECO \$50,000 because security guards were found sleeping on the job, inattentive duty and improperly posted. The NRC also noted that "a key that could have unlocked doors to a security area was issued to a unauthorized employee, couldn't be found and officials didn't do anything about it once they discovered it was missing." William T. Russell, NRC regional administrator, noted, "The improvements made to date were not effective in precluding the occurrence of the violations" (The Patriot News, November 17, 1988, B 2.)

January 1989 - The state of Maryland published a report of radioactive contamination of the Chesapeake Bay due to emissions from Peach Bottom. (Note: The city of Baltimore gets 250,000 gallons of drinking water per day from the Susquehanna River.)

January 12, 1989 - Admiral James D. Watkins, a member of Philadelphia Electric's Board of Directors, was nominated for the post of Secretary of the Department of Energy.

February 1, 1989 - The NRC staff recommended that nuclear power plants that utilize the Mark 1 containment shell, modify the structure to reduce the risk of failure during a serious accident. PECO said it would make the \$2 to \$5 million changes only if the Nuclear Regulatory Commission makes the modifications a requirement. This is the second time in two years that the NRC staff has advised the Commission to make changes to the Mark 1 containment structure.

February 8, 1989 - The NRC announced that despite improvements at Peach Bottom, a restart vote will not take place until April, 1989.

February 18, 1989 - The NRC's Integrated Assessment Team's Inspection announced that PECO was close to restarting Peach Bottom.

February 28, 1989 - The Commonwealth of Pennsylvania and Philadelphia Electric concluded an agreement that would give the Commonwealth access to confidential material and allow the state to monitor PECO's operation of Peach Bottom. The agreement was not an endorsement for restarting Peach Bottom.

February 28, 1989 - The Lancaster New Era declared in an editorial on restart that, "While the company claims it sincerely has reformed, we have the overriding impression that reopening the plant, not safety, is the bottom line for the plant operator, Philadelphia Electric Co."

April 21, 1989 - By a 3-0 vote, the NRC approved the restart of Peach Bottom. PECO spokesman Bill Jones calculated that the shutdown cost Philadelphia Electric \$300 million. (Patriot News, April 21, 1989, B-3.) "Whistleblower" W. Allan Young, who was fired from Peach Bottom after raising concerns about workers being exposed to high levels of radiation, said in an open letter to the NRC, that the same people who fired him and prevented his rehiring at the plant, are still there. Young told WITF-TV, "They have idiots running that plant."

April 27, 1989 - "An unplanned shutdown was made to repair three malfunctioning intermediate range monitors (IRM) during reactor startup" (SALP 50-277/88-99; 278/88-99.)

April 28, 1989 - Peach Bottom began its ascent towards full power.

May 11, 1989 - "An unplanned shutdown was made to replace a malfunctioning safety relief valve (SRV) which was slow to reclose" (SALP 50-277/88-99; 278/88-99.)

May 14, 1989 - The reactor was taken to subcriticality due to problems with the the electro-hydraulic control (EHC) system (SALP 50-277/88-99; 278/88-99.)

May 19, 1989 - Peach Bottom was shut down due to mechanical problems. Unit 2 "automatically scrammed from 20% power. The cause of the scram was a failed 'three element/single element control switch in the feedwater system" (SALP 50-277/88- 99; 278/88-99.)

May 22, 1989 - "A malfunction in the offgas recombiner system caused the licensee to shutdown the turbine generator and reduce power to 5%" (SALP 50-277/88-99; 278/88-99.)

May 31, 1989 - Peach Bottom was ranked the third worst nuclear power plant in the nation according to a report released by the consumer group Public Citizen. The report, "Nuclear Lemons: An

Assessment of America's Worst Commercial Reactors," was based on information obtained from the government and nuclear industry.

June, 1989 - Although the NRC revised its list of troubled reactors, Philadelphia Electric's Peach Bottom reactors remained on the list.

June 21, 1989 - The NRC released a report on Mark 1 containment buildings entitled "Severe Accident Risks: An Assessment for Five U.S. Nuclear Plants." The NRC's six-member panel were evenly divided as to whether the Mark 1 containment would be breached during a serious accident. Accordingly, "The NRC decided not to order immediate changes in the Mark 1 containment". (The Patriot News, July 21, 1989, B3.) Yet half of the panel stated "with near certainty" the Peach Bottom's containment structure would fail during a core melt accident.

July 21, 1989 - At Peach Bottom 2: "An automatic reactor scram on main steam isolation valve (MSIV) closure occurred when troubleshooting activities in an electro-hydraulic control cabinet caused a false indication of high reactor pressure"(NRC SALP 50-277/89-99; 278/89-99,p.3.)

August, 1989 - PECO "operated Unit 2 at power for about 32 hours with the emergency service water system inoperable." PECO was cited and paid a civil penalty on August 15, 1990.(See February, 1990 for related incident.) (NRC IR 50-277/92-09 and 50-278/92-09.)

August 5, 1989 - PECO reached an agreement with the Public Utility Commission "not to charge customers for \$24.3 million in costs incurred by the company when the Peach Bottom nuclear power plant was shut down under a federal order" (Patriot-News, August 4, 1989, B-6.) However, PECO is seeking to "recover" \$107 million from its customers through a rate increase.

September, 1989- The NRC released a SALP report indicating weaknesses "...in the performance of and support for some engineering projects, corporate technical assessment activities and management support for health physics training programs and technical facilities" (Annual Report 1989, p.13.)

September 15, 1989 - The Pennsylvania Superior Court reversed a lower court's decision dismissing charges by George Field against the Philadelphia Electric Company. Field, a health- physics technician, alleged that PECO directly released radiation on him to avoid shutting the plant down. The three judge panel concluded:
We can visualize no conduct more outrageous in character, so extreme in degree, that went beyond all possible bounds of decency and to be regarded as atrocious and utterly intolerable in a civilized

community, than to vent highly radioactive steam upon an employee. Furthermore, this was an intentional act. They elected to do this to him and then attempted to conceal the resulting situation. The three judge panel remanded the case back to York County Common Pleas Court. Field is seeking \$5.2 million in damages. (The Philadelphia Inquirer, September 15, 1989, 3-B.)

September 19, 1989 - In a report entitled Nuclear Legacy: An Overview of the Places, Problems and Politics of Radioactive Waste in the United States, (Public Citizen September 1989), Peach Bottom was identified as hosting one the largest irradiated fuel pool inventories in the nation. (Peach Bottom-2 was ranked seventh and Peach Bottom-3 was ranked eighth.) The combined volume of irradiated fuel being stored at Peach Bottom is 299.8 cubic meters. The material stored in these pools is classified as high-level reactor waste.

October 5, 1989 - The NRC lifted its shutdown order on Peach Bottom. (The order was enacted on March 31, 1987.) This action allows Unit-3 to restart immediately. (Unit-2 has been operating since April, 1989, while the shutdown order was in effect.) The order also reduces the "strict" monitoring presence of the NRC at Peach Bottom. "The total cost of the shutdown was about \$250,000 million, including \$168 million for replacement power and a \$46 million fine imposed by the state and Public Utility Commission" (Patriot News, October 6, 1989, B-6.)

October 5, 1989 - An automatic scram occurred at Unit 2 due to equipment failure. The plant was at 100% power when "... an outboard MSIV closed during surveillance testing, causing a pressure spike and a high high flux reactor scram" (NRC SALP 50-277/89-99;278/89-89, p.4.)

October 5-10, 1989 - Peach Bottom shut down due to mechanical problems.

November, 1989 - A former PECO employee was convicted by a federal jury of possessing methamphetamine at Peach Bottom in 1985 and 1986. (For more details see: November, 1987; January 8, 1988; February, 1988; and, May 2, 1988.)

November 26, 1989 - An unplanned shutdown at Unit 2 resulted from equipment failure and design weakness. The plant was operating at full power when "an unplanned shutdown was made to repair an unisolable steam leak outside containment emanating from the RCIC injection check valve hinge pin picking" (NRC SALP 50-277/89-99; 278/89-99, p.4.)

Precursor RCIC problems were identified by the NRC on the following dates: December 10, 1982, March 8 and June 28, 1984, and

August 14, 1985.

December 11, 1989 - PECO restarted Unit-3 which was shutdown by the NRC on March 31, 1987. The company has estimated the total cost of the shutdown now exceeds \$214 million, including monies spent for replacement power and a rate penalty levied by the Pennsylvania Public Utility Commission (Patriot News, December 13, 1989.)

December 20, 1989 - Unit-2 experienced an "unusual event" and was shutdown. The plant was automatically shutdown from 100% power "after a technician tested a power monitor, according to officials of Philadelphia Electric Co." (Patriot News, December 21, 1989.)

December 27, 1989 - Peach Bottom 2 restarted after shutdown.

January 8, 1990 - The Patriot News reported, "Philadelphia Electric Co. conducted psychological screenings of control-room operators at its Peach Bottom nuclear power plant to determine how many could be retrained after the plant was closed down by the Nuclear Regulatory Commission in 1987" (Patriot News, January 8, 1990, C3.)

The behavior-modification and rehabilitation program, "People: The Foundation of Excellence," was conducted by the psychologists' firm of Rohrer, Hibler & Replogle. Twenty-four out of the 36 control-room operators at the time of the shutdown entered the program. In addition, "10 of the remaining 12 were demoted and reassigned. Of the other two, one retired and one resigned. None of the five shift supervisors were considered for retraining, and were among the group demoted and reassigned" "Patriot,C3)

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In a memo from Julius J. Persensky, a section chief in the NRC's Human Factors Assessment Branch, Mr. Persensky noted the program was of limited value and operators still believe "that their previous behavior was safe." Persensky's memo also noted that Rohrer, Hibler & Replogle found the operators to be: a depressed, powerless, angry, humiliated and victimized group who didn't think they were doing wrong; practical as opposed to theoretical; open, candid and forthright; sheltered, narrow, parochial and naive; and, loyal to the organization, their profession and the company. According to Rohrer, Hibler & Replogle, up to ten people in may have to retake the program. (Patriot, C3.)

January 27, 1990 - Unit 2 was shutdown again due to equipment failure and design weakness. The plant was shutdown to "repair an unisolable leak outside containment on a "B" reactor feedwater pump discharge flow instrument line" (see November 26, 1989 for a related incident) (NRC SALP 50-277/89-99;278/89-99, p.4.)

January 28, 1990 - Unit 3 was forced into, "A fast power reduction and manual reactor scram were initiated when an electro-hydraulic control system fluid leak developed. The leak was caused by a failed sealing "O" ring (NRC SALP 50-277/89-99; 278/89-99, p.4.) The plant was operating at 100% power.

February, 1990 - The emergency service water system "became inoperable due to improper restoration from maintenance activities." (See August 1989 for related incident.) (NRC IR 50-277/92-09 and 50-278/92-09.)

March 6, 1990 - Unit 3 was shut down due to a "mechanical problem with the system's generator, officials said. Unit 2 had been shut down last week for maintenance" (York Daily Record, March 7, 1990.) However, an inspection report compiled by the NRC stated that "equipment failure complicated by inadequate surveillance procedures" resulted in an automatic scram. The event was caused when "the main turbine tripped at a reactor power of 35% due to A loss of main generating stator cooling" (NRC SALP, 50-279/89-99;278/88-99, p.5.)

March 31, 1990 - In PECO's Report to Shareholders First Quarter 1990, the "Company reported a loss of \$84 million, equivalent to 40 cents per share, compared with earnings of \$118.9 million or 57 cents per share for the same period a year ago when 2.6 percent fewer shares were outstanding."

April 11, 1990 - Peach Bottom's Unit 2 and Unit 3 reactors were rated *third and fourth worst* in the nation in terms of worker exposures, according to a report released by Public Citizen's energy policy group. The report was based on data obtained from the NRC.

April 21, 1990 - Peach Bottom 2 was "taken off line due to vibrations in the unit's generator exciter" (York Daily Record, May 1, 1990.) Personnel error, procedure weakness and equipment failure contributed to the shutdown.

April 23, 1990 - In a letter to Philadelphia Electric Shareholders, Joseph Paquette, Chairman and CEO, announced, "... the Company's Board of Directors voted to reduce the Company's quarterly dividend from \$.55 per share to \$.30 per share per share effective with the payment for the second quarter of 1990 to be made June 29, 1990." This action was linked to a rate request regarding the costs of operating and owning Limerick.
- In the Report to Shareholders for the *Third Quarter 1990*, Philadelphia Electric reported reaching a settlement "in the shareholders' derivative suit brought by certain shareholders against the Company's former Chairman and former President in connection with the events

leading to the shutdown....Under the terms of a settlement agreement, two of the Company's director and Officer liability insurance carriers paid approximately \$34.5 million. The settlement became final on October 30, 1990. The plaintiffs' recovery, less \$6.5 million for their attorneys' fees and expenses were paid to the Company on November 1."

However, In PECO's annual statement, the company admitted, "The penalties associated with the [Peach Bottom's] shutdown for 1989 amounted to 23 cents per share, compared to 25 cents per share for 1988" (Annual Report 1989, p.14).

In addition, "The Company did not request recovery of any Peach Bottom replacement power costs incurred solely as a result of the NRC's shutdown order. In 1989, replacement power costs attributable to the shutdown order were approximately \$57 million , representing a reduction in common stock earnings of 17 cents per share" (Annual Report, p.21.)

May 11, 1990 - "...instrument and controls technicians replacing a voltmeter on the '3B' battery charger caused a DC electrical system voltage transient" (NRC IR 50-277/92-09 and 50-278/92-09.)

June 15, 1990 - The Public Utility Commission (PUC) ruled that Philadelphia Electric had to refund to its customers \$15 million. "The PUC ruled that PECO kept sloppy records, did not use enough competitive bidding and did not bid projects frequently enough" (Patriot News, June 15, 1990.)

June 26, 1990 - The Pennsylvania Public Utilities Commission (PUC) released its twelfth annual report on utility consumer complaints to the PUC's Bureau of Consumer Services. The report noted that PECO was one of the companies whose overall performance "was worse than that of other companies" and "would benefit both from a critical review of their own operations and from attempting to emulate the operations of the companies which performed best."

July 18, 1990 - The NRC fined PECO \$75,000 for violations of technical specifications involving the "plant's emergency service water system, a support system designed to cool safety equipment, other than the reactors, at Peach Bottom's Units 2 and 3" (The Patriot, July 18, 1990, B 5.)

July 28, 1990 - Philadelphia Electric declared an unusual event from "5:38 am to 6 am because of a momentary increase in radiation levels in an internal gas-filtering system" (Patriot News, July 28, 1990, A 3.) Radioactive gas was released into the environment for ten minutes.

August 15, 1990 - PECO paid a civil fine to the NRC for an August, 1989 incident involving the emergency service water system. (Also see February, 1990.)

August 16, 1990 - In NRC inspections from July 1, 1989 to May 31, 1990, Peach Bottom 2 "experienced six unplanned shutdowns because of personnel errors or equipment failures, while the Unit 3 reactor had two shutdowns " (Philadelphia Inquirer August 16, 1990, 17 D).

September 11, 1990 - PECO "discovered that indications derived from Unit 3 reactor water level transmitters...were abnormally high when compared to actual reactor water level" (NRC IR 50-277/92-13 and 50-278/92-13.) (See March 26 and 27, 1992 and July 26, 1992 for related incidents.)

December 1, 1990 - In Philadelphia Electric's Report to Shareholders Third Quarter 1990, PECO announced: "For the three months ended September 30, 1990, the Company reported a loss of \$8 million, or 4 cents per shareEarnings for the twelve months ended September 30, 1990 were 53 cents per share, \$1.68 under the earnings of the previous twelve month period."

February 1, 1991 - In PECO's Annual Report 1990, the company noted that earnings per share plummeted by a \$1.78. Operating and maintenance costs rose by \$406 million or 38%.

February 11, 1991 - "A contractor working inside the dormant Unit 2...took an 8-foot fall and was flown to York Hospital with slight contamination to his forehead." Neil McDermott, a company spokesman for PECO, said: "They resolved it by, (the contamination), well, soap and water" (Patriot, February 11, 1991.)

February 12, 1991 - A, "Unit 2 primary containment isolation system (PCIS) and standby gas treatment system (SGTS) initiated (9:10 am) due to an electrical ground. "The event was not detected by the plant operators until about 10:00 am, because related annunciators had been removed from service for outage work" (NRC inspection reports 50-277/91-08; 50-278/91-08, p.2.)

February 20, 1991 - At about 1:10 pm, a full Unit 2 reactor scram occurred due to inadequate blocking. "The unit was in refueling at the time with all control rods inserted" (See related incident on February 21, 1991)(NRC inspections 50-277/91-08;50-278/91-08, p.2.)

February 21, 1991 - Inadequate blocking caused a loss of shutdown cooling. The "isolation occurred when an auxiliary operator (AO) inadvertently grounded a lead in the control room panel while applying a blocking permit" (See related incident on February 20, 1991) (NRC inspections 50-277/91-08;50-278/91-08, p.3.)

February 21, 1991 - At 10:00 pm at Unit 2, fuel bundles were misplaced during a core reload. "An investigation revealed that the bundle had been erroneously loaded ...at 1:47 of the same day" (See related incidents on February 21-22, 1991)(NRC inspections 50-277/91-08; 50-278/91-08, p.4.)

February 22, 1991 - A fuel bundle at Unit 2, at a separate location from the previous day's error, was "incorrectly loaded" at 1:15 pm. The errors was not found until 6:00 am on February 24, 1991. Contributing to this error Poor CCTAS legibility" and "less than adequate communications."

On the same day a third and fourth error occurred!

"The third error was identified at about 3:00 pm....Fuel movement was suspended and the core and spent fuel pool (SFP) were inspected, leading to the discovery of fourth error" (See February 21 1991 for a related incident) (NRC inspections 50-277/-91-08; 50-278/91-08.)

February 23, 1991 - The refueling moderator temperature was exceeded. "The lower moderator's temperature results in the addition of positive reactivity, and a decrease in shutdown margin....Fuel reload was halted..." (NRC inspection reports 50-277/91-08;50-278/91-08, p.6.)

February 25, 1991 - Unit was at 100% power when "a high pressure coolant injection (HPCI) was declared inoperable when the mechanical overspeed trip (MOTD) did not operate as designed during performance of a routine surveillance test" (NRC inspection reports 50-279/1-08/50-278/91-08, p.3.) (For related events see: May 18 and 21, 1991; July 15-19, 1991; August 25, 1991; and, October 16, 1991.)

March 21, 1991 - PECO "found four normally locked open unit 2 valves unlocked. Two of these valves were also closed" (NRC inspection reports 50-277/91-13;50-278/91-13, p.11.)

April 1-5, 1991 - The NRC issued a Notice of Violation. "The violation is of concern because of the possible incompatibility of the insulation with materials it is in contact with and the fact that it may compromise fire loadings and propagation potentials" (NRC inspections 50-277/91-14 and 50-278/91-14.)

April 7, 1991 - The Chief Reactor Operator discovered that the Technical Specifications surveillance requirement to log Unit 2's reactor vessel heat up rate had not been performed. (NRC inspections 50-277/91-13;50-278/91-13, pp. 2-3.)

April 10-11, 1991 - The Unit 3 high pressure coolant injection system failed several times.

April 15, 1991 - During maintenance testing it was discovered that "valves were reinstalled in the wrong direction following the current valve refurbishment" (NRC inspection reports 50-277/91-13/50-278/91-13, p. 5.)

April 22, 1991 - "...a fault developed in one of the conductors connecting the secondary side of the # 2 Emergency Auxiliary (2EA) transfer to the safety and non-safety related 4 KV busses" (NRC inspection reports 50-277/91-13;50-278/91-13, p.7.)

April 23, 1991 - At Unit 2 "reactor power was decreased, the mode switch was placed in startup and power was held at 5% to replace cable on an emergency transformer when its insulation was found to be shorted" (NRC inspection reports 50-277/91-16 and 50-278/91-16, Details.)

April 25, 1991 - Peach Bottom 2 was rated the third worst nuclear reactor in the country. Peach Bottom 2 and 3 were tied for seventh worst rate of worker exposure to radiation. (Public Citizen, Nuclear Lemons: An Assessment of America's Worst Commercial Nuclear Power Plants.)

May 2, 1991 - "Due to further degradation of emergency transformer cable insulation the unit (2) was shut down on may 2 to replace the cables" (NRC inspection reports 50-277/91-16 and 50-278/91-16, Details.)(See July 4, 1992 for a related incident.)

May 9, 1991 - The Unit 3 reactor experienced "an unexpected isolation of the reactor water cleanup (RWCU) system occurred when technicians placed a jumper in an incorrect location" (NRC inspections 50-277/91-16 and 50-278/91-16, p.2.)

May 13-20, 1991 - An NRC inspection noted that: "During the 1991 Unit 2 refueling outage, leaks in the Unit 3 Offgas System allowed noble gas to be released to many areas of the plant"(NRC inspection reports 50-277/91-17 and 50-278/91-17, p.3.)

May 15, 1991 - During the performance of a surveillance test at Unit 2, "system engineers incorrectly removed fuse DD-29 from panel

20C15 instead of the specified fuse DD-28. Pulling the fuse removed power from the primary containment isolation system (PCIS) group III inboard isolation logic, causing the associated components to isolate" (NRC inspection reports 50-277/91-16 and 50-278/91-16, p.3.)

May 18, 1991 - The Unit 2 high pressure coolant injection (HPCI) system was made inoperable during fire protection system surveillance testing. (NRC inspections 50-277/91-16 and 50-278/91-16.) (For related event see: February 25, 1991; May 21, 1991; June 19, 1991; July 15-19; August 27, 1991; and, October 16, 1991.)

May 20, 1991 - At Unit 3, "the residual heat removal (RHR) pump automatically started when technicians incorrectly removed a switch from the 'test position'" (NRC inspection reports 50-277/91-16 and 50-278/91-16, p.4.)

May 21, 1991 - During a routine surveillance procedure at Unit 2, "an unexpected isolation of the HPCI system steam line" occurred (NRC inspection reports 50-277/91-16 and 50-278/91-16, p.4.) (For related events see: February 25, 1991; May 18, 1991; June 19, 1991; July 15-19; August 25, 1991; and, October 16, 1991.)

May 21, 1991 - Both units were affected by the inoperability of the emergency diesel generator due to unqualified relays. (NRC inspection reports 50-277/91-16 and 50-278/91-16, pp.5-6.)

May 23, 1991 - Units 2 and 3 were shutdown "due to a belief that the 4 station Emergency Diesel generators (EDG's) could potentially be rendered inoperable during design basic events" (Licensee Event Report 50-277 and 50-278.)

May 29, 1991 - Both standby liquid control (SLC) pumps at Unit 3 were rendered inoperable due to high tank temperatures. (NRC inspection reports 50-277/91-16 and 50-278/91-16.)

June 7, 1991 - Unit 2 was shutdown (tripped) due to inadequate recirculation pump seal cooling. (NRC inspections 50-277/91-16 and 50-278/91-16.)

June 15, 1991 - An NRC inspector "found a security guard asleep on the Unit 2 refuel floor...The guard had been assigned to watch a cask which had not been opened and searched" (Inspection reports 50-277/91-20 and 50-278/91-20.)

June 19, 1991 - A Notice of Violation was issued for an incident which involved the high pressure coolant injection system on May 21, 1991.(See February 25, 1991; May 18 and 21, 1991; and, July 15-19, 1991 for related incidents.)

June 24, 1991 - Unit 2 pressure transmitters were identified as not being seismically supported."The support for the PT's was mounted on non seismic floor grating and only one of four anchor bolts was installed" (Inspection reports 50-277/91-20 and 50-278/91-20.)

June 24-28, 1991 - A Notice of Violation was issued for the following: "Two instances were identified in which corrective actions taken by your staff had not adequately resolved deficiencies related to quality classification of safety-related equipment (Q-List), and control of measuring and test equipment" (NRC inspection 50-277/91-20 and 50-278/91-20.)

June 24-28, 1991 - An NRC radiological safety inspection observed, "Audit findings indicated that, at times, management had provided poor oversight of program activities. For example, individuals who failed to perform radiologically sound work were not always held accountable for their work. Examples of poor quality were observed for individuals both internal and external to the HP organization" (NRC inspections 50-277/91-22 and 50-278/91-22)

June 27, 1991 - An unplanned manual scram occurred at Unit 2 due to low condenser vacuum.(NRC inspection reports 50-277/91-20 and 50-278/91-20.)

July 7, 1991 - Unit 3 was scrammed following a trip of the main generator output breakers. (NRC inspections 50-277/91-20 and 50-278/91-20.)

July 8-12, 1991 - The NRC staff "...identified several instances of failure to take effective corrective action in response to previously identified problems in the surveillance testing area. We are concerned with this matter because of the time which has elapsed since these problems were first identified. Management has not developed detailed plans or goals to improve performance in this area" (NRC inspections 50-277/91-23 and 50-278/91-23.)

July 10, 1991 - At Unit 3, "licensee technicians inadvertently caused a trip of the "B" reactor protection system (RPS) motor generator (MG) set." The secondary containment was also isolated during troubleshooting. (NRC inspections 50-277/91-21 and 50-278/91-21.)

July 16-17, 1991 - The licensee determined that there was low emergency water flow to Unit 2's Emergency Diesel Generators and residual heat removal pumps. "As a result, the Unit 2 RCIC and 'B' loop of low pressure coolant injection (LPCI) were declared inoperable on July 16 and 17" (NRC inspections 50-277/91-21 and 50-278/91-21.)

July 15-19, 1991 - During an inspection the NRC observed: "...one of your activities related to the operability of the high pressure coolant injection (HPCI) system appears to be in violation of NRC requirements..." (NRC inspections 50-277/91-24 and 50-278/91-24.) (For related events see: February 25, 1991; May 18 and May 21, 1991; June 19, 1991; August 25, 1991, and, October 16, 1991.)

July 18, 1991 - The Unit 2 high pressure coolant injection system isolated during surveillance testing. (NRC inspections 50-277/91-21 and 50-278/91-21.)

July 24, 1991 - An initiation of a Unit 3 plant shutdown occurred due to an inoperable DG Auto-start logic. (NRC inspections 50-277/91-21 and 50-278/91-21.)

July 27, 1991 - There was a partial containment isolation at Unit 3 following the failure of a 500 KV disconnect switch.

July 24, 1991 - A letter from the Assistant Associate Director of FEMA noted: "Twenty-two Areas Requiring Corrective Action were identified during the [emergency preparedness practice on February 7, 1990] exercise. FEMA's Region III staff will monitor the status of the corrective actions" (Letter to the NRC from Dennis H. Kwitkoski.)

July 30- August 1, 8 and 22, 1991 - The NRC conducted safety inspections of emergency preparedness exercises and found: "While no violations were noted during the inspection, one exercise weakness was identified. This weakness concerned a significant breakdown in the communication, distribution, and tracking of scenario data" (NRC inspections 50-277/91-25 and 50-278/91-25.)

July 31, 1991 - A Notice of Violation was issued for an "event at the Peach Bottom facility during which you [PECO] overheated the Unit 3 standby liquid control (SLC) solution storage tank" (See May 29, 1991 for more details) (NRC inspections 50-277/91-16 and 50-278/91-16.)

August 5, 1991 - Unit 2 scrambled at 98% power. "The main turbine tripped due to high level in the 'D' moisture separator drain tank (MSDT)" (NRC inspections 50-277/91-27 and 50-278/91-27.)

August 12, 1991 - The NRC revealed that they did not have current copies of Peach Bottom's Emergency Operating Procedures.

August 25, 1991 - Unit 3 was shutdown due to inoperable room coolers. PECO "found that both the high pressure coolant injection (HPCI) and the reactor core isolation cooling (RCIC) system pump component coolers were inoperable" (NRC inspections 50-277/91-27 and 50-278/91-27.) (For related incidents see: February 25, 1991; May 18 and 21, 1991; July 15-19, 1991; and, October 16, 1991.)

August 27, 1991 - Both units were "shutdown following discovery that two of the four emergency diesel generators (EDG) were inoperable" (NRC inspections 50-277/91-27 and 50-278/91-27.)

September 8, 1991 - Philadelphia Electric "discovered that the "A" CAD sample line from the torus was plugged" (NRC inspection 50-277/91-27 and 50-278/91-27.)

September 12, 1991 - An unusual event was declared when jet pump components dropped into the spent fuel pool" (NRC inspections 50-277/91-27 and 50-278/91-27.)

September 17, 18 and 24, 1991 - The control room emergency ventilation system isolated and transferred to the emergency ventilation mode" (Another occurrence was reported on October 25, 1991.) (NRC inspections 50-277/91-27 and 50-278/91-27.)

September 19-20 and 23-24, 1991 - A Notice of Violation was issued by the NRC. The staff reported: "Of concern to us associated with the work on RWCPU Pump 3B was the failure of your staff to perform an assessment of the radiological hazards associated with pump components and subsequent failure to establish appropriate radiological controls for the work. Surveys for beta radiation hazard of the pump impeller and internal components were not made prior to allowing work to commence on them. After the work was completed contact beta radiation dose rates were determined to be as high as 1,100 Rads per hour. While performing the work without accurate knowledge of the beta radiation dose rate did not lead to an overexposure, it may have resulted in unnecessary exposure" (NRC inspections 50-277/91-28 and 50-278/91-28.)

September 24, 1991 - PECO determined that there was "induced fuel failure" at Unit 3. "The licensee visually inspected the six bundles and identified that one of the bundles had experienced failure caused by a malfunctioning defect, while the other five bundles had experienced debris induced failure. The debris appeared to be small metal chips" (NRC inspections 50-277/91-33 and 50-278/91-33.)

September 27 through November 4, 1991 - During this inspection period the NRC found "certain" of PECO's activities to be in "violation." A Notice of Violation was issued. "Inadequate initial and independent verification of a valve position resulted in an emergency core cooling pump being inoperable for about seven days. The consistency and quality of worker and independent verification of safety-related operations, maintenance and test activities is a recurring weakness" (NRC inspections 50-277/91-30 and 50-278/91-30.)

October, 1991 - Employees using the wrong shutdown manual caused an overheating of the plant's boron injection water. Larry Doerflein of the NRC commented: "By and large, there has been little overall progress. We're still seeing the same problems we saw a year ago" ("Atoms & Waste," October, 1991.)

October 2, 1991 - The NRC issued a violation "associated with inadequate radiation surveys during work on highly radioactive components" (NRC IR50-277/92-80 50-278/92-80.)

October 16, 1991 - Unit 2 was shut down at 73% power due to the inoperability of the high pressure coolant injection. A steam isolation valve packing leak had been detected. (NRC inspections 50-277/91-30 and 50-278/91-30.) (For related incidents see: February 24, 1991; May 18 and 21, 1991; July 15-19, 1991; and, August 25, 1991.)

October 21-25, 1991 - "One non-cited violation was noted involving radioactive material receipt practices (NRC inspections 50-277/91-32 and 50-278/91-32.)

October 22, 1991 - A fire in the Unit 3 condenser bay occurred from 10:23 p.m. to 10:37 p.m. (NRC inspections 50-277/91-30 and 50-278/91-30.)

October 25, 1991 - "The main control ventilation system automatically isolated and transferred the emergency ventilation mode..." (This type of actuation also occurred on September 17, 18 and 24, 1991.) (NRC inspections 50-277/91-30 and 50-278/91-30.)

October 26, 1991 - An unusual event was declared when a "potentially contaminated individual" was transported offsite. (NRC inspections 50-277/91-30 and 50-278/91-30.) (See December 8, 1991 for related incident.)

October 27, 1991 - Nuclear Maintenance Division "found the fuel bundle at spent fuel pool location Z-31 to be oriented improperly" (50-277/91-30 and 50-278/91-30.)

October 28, 1991 - "Smoke was detected coming from the Unit 2 "B" Low Pressure Coolant Injection (LPCI) swing bus. Further examination revealed that the power monitoring relay for the bus had burned up" (NRC inspections 50-277/91-30 and 50-278/91-30.)

October 28, 1991 - The "B" auxiliary boiler was contaminated with radioactive iodine-131. The boiler was isolated and radioactive liquid was drained to the radwaste system. (See December 23, 1991 and February 24, 1992 for related incidents.)

November 4, 1991 - "The Unit 2 'B' reactor protection system (RPS) motor generator (MG) set unexpectedly tripped" (NRC inspections 50-277/91-30 and 50-278/91-30.)

November 8, 1991 - PECO "determined that the automatic depressurization system (ADS) had been inoperable from shortly after the plant startup in December 1989 to shutdown for the refueling outage on September 14, 1991. The licensee concluded that the environmental qualification (EQ) of the solenoid operated valves (SOV), electrical cables and splices, to the five ADS safety related valves (SRV) had expired shortly after startup. The thermal insulation over all 11 SRVs, including the 5 SRVs dedicated to ADS, had been installed backwards during the last refueling outage" (NRC inspections 50-277/91-33 and 50-278/91-33.)

December 1, 1991 -In PECO's "Report to Shareholders, Third Quarter, 1991,"it was revealed that a management audit was conducted from July, 1989 to May, 1990. The audit was completed by Ernst & Young and released in August, 1991. Philadelphia Electric admitted that the audit "details a significant number of opportunities for the Company to improve in almost every aspect of operations, and we have submitted a detailed implementation plan to the PUC addressing each of the recommendations for improvement."

December 5, 1991 - Unit 2 was forced to shutdown due to excessive leakage past the residual heat removal system injection check valve. (NRC inspections 50-277/91-33 and 50-278/91-33.)

December 5, 1991 - A reactor core isolation occurred at Unit 2. (NRC inspections 50-277/91-33 and 50-278/91-33.)

December 8, 1991 - An unusual event was declared when a potentially contaminated individual was transported off site. (NRC

inspections 50-277/91-33 and 50-278/91-33.) (See October 26, 1991 for related incident.)

December 16, 1991 - At Unit 3, "an unexpected primary containment isolation occurred..." during instrument line-up (NRC inspections 50-277/91-43 and 50-278/91-34.) (See March 10, 1992 for related incident.)

December 18, 1991 - A shutdown cooling isolation occurred at Unit 3 "when a PCIS logic fuse blew" (NRC inspections 50-277/91-43 and 50-278/91-34.) (See January 4, 1992 for related incident.)

December 23, 1991 - Low-level iodine-131 contamination was reported at the "B" and "C" auxiliary boilers. (See October 28, 1991 and February 24, 1992 for related incidents.)

December 24, 1991 - In a letter to Mr. D.M.Smith, Senior Vice President-Nuclear, the NRC identified two problems at Peach Bottom. "The first problem concerns the degradation, and potential extended inoperability, of the Unit 3 automatic depressurization system due to the incorrect installation of the valve thermal insulation. In addition, your immediate corrective actions following discovery of this problem were not completely effective. A similar problem on one Unit 2 valve was not identified and corrected until raised by the inspector. Based on our review of the issues, two apparent violations of NRC requirements were identified and are being considered for escalated enforcement action..." (Charles W. Hehl, Director, Division of Reactor Projects.)

January 4, 1992 - Due to valve fuse failure, PECO "determined that containment integrity could not be assured for the reactor core isolation cooling suppression pool suction line" (NRC inspections 50-277/91-34 and 50-278/91-34.) (See December 18, 1991 for related incident.)

January 17, 1992 - High oxygen concentration levels were recorded in the Unit 3 control room.

February 24, 1992 - The NRC reviewed PECO's efforts to desludge the flood drain waste storage tank and found several problems: "...The radiation protection technician who wrote the permit was unaware that personnel would be walking in radioactive sludge measuring up to 350 millirem per hour (mr/hr) on contact...The radiation protection supervisor who signed the RWP was not aware that workers would be working in sludge...the planning process did not evaluate the collective radiation exposure that would result from desludging all tanks over the life of the PM process... The work activity was not reviewed by the ALARA group, which precluded in-depth evaluation of all exposure reduction

methods, including the use of state-of-the-art cleaning techniques or design changes to tanks to provide for ease of future cleaning that would reduce aggregate exposure...The filter clogged and resulted in additional personnel exposure...the licensee contacted no other stations to identify state-of-the-art methods to perform tank desludging" (NRC IR 50-277/92-80 and 50-278/92-80.)

February 24, 1992 - Low-levels of iodine-131 contamination in the "A" auxiliary boiler were reported. (See October 28 and December 23, 1991 for related events.)

February 24 through March 13, 1992 - The NRC's Integrated Performance Assessment Team (IPAT) issued its findings and "concluded that several weaknesses merit near-term corrective actions to reduce the potential for future safety problems...the team observed weaknesses in licensee evaluation of degraded or inoperable control room instrumentation and permanently installed plant instrumentation. Weaknesses were also identified in the lack of interim corrective actions for self-assessment findings and in the control of documents related to modifications and temporary plant and procedure changes" (NRC Region I IPAT IR 50-277/92-80 and 50-278/92-80.)

February 25, 1992 - Philadelphia Electric agreed to pay \$285,000 in fines for the improper insulation of safety system relief valves at Unit 3. Company spokesman Neil McDermott admitted there is "absolutely no question and we readily admit that the insulation was improperly installed" (Patriot News, February 25, 1992.)

March 6, 1992 - The NRC observed: "Several weaknesses were noted in the training program during the conduct of the examinations. Differences between Peach Bottom and Limerick had a negative impact on some LSRO lesson plans in that the lesson plans did not track actual plant practice. LSRO responsibilities were not well defined at Limerick and differ from those at Peach Bottom. Training was not always given as described in the task to training matrix or the qualification manual. In general, the candidates' knowledge of the site and plant at which they were not normally stationed was weak." (Lee H. Bettenhausen, Chief, Operations Branch, Division of Reactor Safety.)

March 10, 1992 - PECO "concluded" that Units 2 & 3 had deficiencies in their primary containment isolation systems.(NRC inspections 50-277/92-07 and 50-278/92-07.) (See December 16, 1991 for related incident.)

March 10, 1992 - The NRC's Integrated Performance Assessment Team (IPAT) observed, "an operator exit the fourth floor administration building radiological control point...without properly surveying personal articles being removed from the radiological control area" (NRC Region I IPAT 50-277/92-80 and 50-278/92-80.)

March 13, 1992 - Philadelphia Electric "discovered" Unit 2 residual heat removal equipment valves were not installed. "With the check valves on the discharge of the sump pumps for the 'B' and 'D' RHR rooms not installed, this design basis can not be met. Specifically, during a loss of coolant accident, concurrent with a loss of off-site power, the reactor building sump pumps would not be available due to the loss of off-site power" (NRC inspections 50-277/92-07 and 50-278/92-07.)

March 16, 1992 - Due to a turbine exhaust drain line valve failure, the Unit 2 high pressure coolant injection system was rendered inoperable. (NRC inspections 50-277/92-07 and 50-278/92-07.) (See March 23, 1992 for related incident.)

March 23, 1992 - PECO "declared the HPCI system inoperable when the turbine overspeed trip device did not reset during testing" (NRC inspections 50-277/92-07 and 50-278/92-07.) (See March 16, 1992 for related incident.)

March 26, 1992 - PECO "declared all Unit 2 reactor water level instrumentation associated with the 2B reactor water level reference leg condensing chamber inoperable" (NRC IR 50-277/92-13 and 50-278/92-13.) (See September 11, 1990, March 27, 1992 and July 26, 1992 for related incidents.)

March 27, 1992 - Unit 2 was shutdown due to inoperable reactor level instrumentation. (See September 11, 1990, March 26, 1992 and July 26, 1992 for related incidents.)

April 2, 1992 - A settlement was announced on the two lawsuits brought against PECO by Peach Bottom's co-owners: Public Service Electric and Gas Company, Delmarva Power and Light Company and Atlantic City Electric Company. The suits were related to the NRC shutdown of Peach Bottom on March 31, 1987. "As part of the settlement, Philadelphia Electric will pay \$130,985,000 on October 1, 1992 to resolve all pending litigation." (Joseph Paquette, April 8, 1982.) (See July 27, 1988 for background material.)

April 7, 1992 - PECO began a planned shutdown for Unit 2 from about 100% power. "The shutdown was required because a one inch vent line failed at a welded connection on the condensate supply header to the

offgas recombiner condenser...A reactor scram and primary containment isolation system (PCIS) group II and III occurred" (NRC IR 50-277/92-09 and 50-278/92-09.)

April 17, 1992 - The NRC issued a Notice of Violation for the following infractions: "Contrary to the above requirements, the ODCM [Offsite Dose Calculation Manual] specified composite water sampler at the intake had been inoperable during the period August 30, 1991 to March 19, 1992, and the specified composite water sampler at the discharge had been inoperable since August 8, 1991 and remains inoperable at the time this inspection [was] conducted March 23-27, 1992. The licensee's efforts to complete corrective action prior to the next sampling period were ineffective" (NRC inspections 50-277/92-08 and 50-278/92-08.)

April 29, 1992 - A Health Physics technician was contaminated in the de-watering facility when "contamination controls were compromised. According to the licensee's investigation, a defective latch and hinge on the fill-head access door allowed contamination to escape from the liner to the room during processing. Contamination levels on near-by radwaste equipment were as high as 200 mrad/hour. The general area surfaces in the truck bay were contaminated up to 30,000 dpm/100cm (2)" (NRC IR 50-277/92-12 and 50-278/92-12.)

May 4, 1992 - Philadelphia Electric "initiated a planned shutdown [at Unit 3] in order to repair a large steam leak through a manway on the 'F' moisture separator tank" (NRC inspections 50-277/92-11 and 50-278/92-11.)

May 12, 1992 - Unit 3 recirculation pump trip occurred at 80% power.(See June 27, July 23, July 26 and July 27, 1992 for related incidents.)

May 15, 1992 - PECO initiated a shutdown of Unit 2 "due to inoperability of the high pressure coolant injection and the reactor core isolation cooling systems" (NRC inspections 50-277/92-11 and 50-278/92-11.) (See June 25, 1992 for related incident.)

May 20, 1992 - Unit 2 experienced a reactor scram and turbine trip due to a malfunctioning combined intermediate valve.

May 22, 1992 - The motor for the Unit 3 residual heat removal pump failed and was declared inoperable.

June 1, 1992 - "Common stock earnings for the first quarter of 1992 were \$0.33 per share, \$0.25 lower than the \$0.58 per share earnings for the corresponding period last year. The reduction in earnings

was primarily the result of the previously reported settlement of litigation by the co-owners of Peach Bottom Atomic Power Station which reduced first quarter earnings by approximately \$0.27 per share" (J.F. Paquette, Jr., Chairman of the Board and Chief Executive Officer, Report to Shareholders First Quarter, 1992).

June 25, 1992 - The Unit 3 high pressure coolant injection system was declared inoperable "due to excessive water buildup in the turbine casing" (NRC IR 50-277/92-13 and 50-278/92-13.) (See May 15, 1992 for a related incident.)

June 27, 1992 - The 'A' recirculation pump tripped at Unit 2.(See May 12, July 23, July 26 and 27, 1992 for related incidents.)

July 4, 1992 - An Alert was declared at Peach Bottom due an explosion at the #1 transformer station. Units 2 and 3 were operating at at, or around, 95 % power. As a result of the explosion, Unit 3 scrambled and there were several emergency safeguard actuations.(See May 2, 1991 for a related incident.)

July 14, 1992 - "Unit 3 was manually scrambled from 63% power due to a decreasing main condenser vacuum" (NRC IR50-277/92-13 and 50-278/92-13.)

July 17, 1992 - Unit 2 experienced a turbine trip and reactor scram at 95% power during a severe lightning storm.

July 23, 1992 - The Unit 3 recirculation pump tripped at 95% power.(See May 12, June 27, July 26 and July 27, 1992 for related incidents.)

July 25, 1992 - "Unit 2 was shutdown due to a safety relief valve bellows rupture alarm" (NRC IR 50-277/92-13 and 50-278/92-13.)

July 26, 1992 - The 'A' recirculation pump tripped at Unit 2. (See May 12, June 27, July 23 and July 27, 1992 for related incidents.)

July 26, 1992 - A safety device used at Peach Bottom and 35 other American nuclear reactors may be defective according to the NRC. "Engineers are concerned that in a serious accident involving the rapid loss of coolant and pressure from the reactor, the device would give a false reading, indicating the reactor core was still covered with water when it actually was not and therefore in danger of melting down" (Sunday Patriot News, July 26, 1992 A3.) (See September 11, 1990 and March 26 and 27, 1992 for related incidents.)
Peach Bottom has had a history of problems in this area.

" In August 1990, the licensee identified that the Unit 2 level instrumentation served by the 2B condensing chamber and reference leg was indicating values about 11 inches higher than similar instruments served by the 2A condensing chamber...They [PECO] concluded that the actuation set points for several safety systems would be exceeded during transients or accidents, declared the instruments inoperable and completed a plant shutdown. Following the 1990 event, the licensee revised the channel check procedures to provide better monitoring and evaluation of the instruments...A second level offset event, again *Continued on the next page...*

involving the Unit 2B condensing chamber, occurred in March 1992. The improved surveillance procedures helped the licensee identify the offset before it had exceeded 3 inches. In response, the licensee established a 4 1/2 inch offset operability limit, and closely monitored the instrumentation..." (NRC IR 50-277/92-16 and 50-278/92-16.) (For related incidents see September 11, 1990 and March 26-27, 1992.)

July 27, 1992 - The 'A' recirculation pump tripped at Unit 2. (See May 12, June 27, July 23 and July 26, 1992 for related incidents.)

July 27, 1992 - Peach Bottom and 86 other suspected nuclear reactors "depend on a defective and dangerous fire-barrier system to protect electrical cables used for a safe shutdown during a fire/accident." (Nuclear Information and Resource Service (NIRS), July 27, 1992.) The company who produces the Thermo-Lag 330 system is Thermal Science, Inc. (TSI), St. Louis, Missouri. Among the problems with Thermo-Lag are: combustibility, toxicity, seismic qualification, vulnerability to water, incomplete installation and ampacity calculation errors.

In an IR issued on September 10, 1992, PECO requested a temporary waiver of technical specification compliance for certain fire barriers. The NRC observed: "...the licensee could not post the required fire watch for residual heat removal system cables running through the Unit 3 offgas pipe tunnel because it is a high radiation area". (NRC IR 50-277/92-16 and 50-278/92-16.)

August 6, 1992 - The NRC issued a violation "for operation of the reactor cleanup system in a mode not established in approved operating procedures, is of concern because it represents a weakness in your control of operating activities" (NRC IR 50-277/92-13 and 50-278/92-13.)

August 10, 1992 - PECO entered a seven day maintenance outage on the E-4 emergency diesel generator.

August 17, 1992 - A generator lock-out and reactor scram occurred at Unit 2 due to improper blocking. PECO "determined that the generator lock-out occurred because the permit being applied in the South Substation was incorrect" (NRC IR 50-277/92-16 and 50-278/92-16.)

August 20, 1992 - The Unit 3 Emergency Core Coolant System power supply failed. The root cause was a failed topaz inverter.

September 14, 1992 - A licensed operator tested positive for marijuana use.

October 6, 1992 - During an NRC inspection relating to plant security, one unresolved Fitness-for-Duty(FFD) item was identified. The NRC also cautioned that "... additional attention is warranted on the effectiveness of routine security patrols since we identified certain deficiencies during this inspection that should have been identified by your officers on patrol" (NRC IR 50-277/92-20 and 50-278/92-20.)

October 15, 1992 - Unit 3 scrammed and the high pressure coolant injection (HPCI) system initiated: "... Unit 3 experienced a primary containment isolation system (PCIS) group I isolation on main steam line (MSL) low pressure. This resulted in closure of the MSIVs and a reactor scram. During the post-scram pressure and level transient, vessel water decreased to the ECCS Lo Level initiation setpoint. The high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) systems initiated and injected into the reactor vessel. The alternate rod insertion and reactor recirculation point trip logic also actuated. Three main steam safety relief valves (SRV) opened automatically for a short period to control pressure, and later re-closed. The licensee declared an unusual event (UE) at about 9:25 p.m. due to the initiation and ejection of an ECCS system in response to a valid signal...At about 11:16 p.m., while proceeding with the plant cooldown, reactor vessel level increased above the normal operating band and caused a HPCI and RCIC high reactor vessel water level turbine trip. Due to the temporary loss of HPCI as a means of pressure control, reactor pressure increased to the high pressure scram setpoint. the operators manually operated an SRV to reduce pressure, and restarted HPCI and RCIC. the licensee also reported this second scram signal to the NRC via the ENS. All systems responded as expected following the PCIS group I isolation and reactor scram, and the subsequent high reactor pressure scram" (NRC IR 50-277/92-27 and 50-278/92-27.)

PECO management decided to shut the plant for five days.

After reviewing the events the NRC issued a Notice of Violation and criticized, "The control room staff did not effectively monitor developing reactor coolant stratification following the Unit 3 automatic scram, and certain Technical Specification reactor pressure/temperature limits were

exceeded. Adequate controls were not in place to ensure that the transient was appropriately evaluated before plant restart. Also, operators did not record required pressure data used to evaluate compliance with pressure/temperature limits following a Unit 2 shut-down." (E. Wenzinger, Chief, Projects Branch 2, Division of Reactor Projects, November 16, 1992.)

October 16, 1992 - The NRC found one potential problem with senior reactor operators (SRO) examinations: "Since SRO Upgrades are currently licensed individuals at your facility, we are concerned that your training program may not be emphasizing a high level of performance among reactor operators in referring to and using procedures" (NRC IR 50-277/92-18 and 50-278/92-18.)

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

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

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

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

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

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

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

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

January 1, 1993 - The Unit-2 high pressure coolant injection system was declared inoperable. (NRC IR 50-277/92-32 and 50-278/92-32.) (See January 25 and 31, March 1 and August 9, 1993, for related incidents.)- January 21, 1993 - A Notice of Violation (NOV) was issued relating to the NRC’s Motor-Operated Valve (MOV) Inspection on October 19-23 and November 3, 1992. PECO “1) did not document nonconforming positions, 2) did not properly disposition existing nonconforming conditions, and 3) did not take timely corrective actions to evaluate and resolve nonconforming conditions in MOVs...” (NRC IR 50-277/92-82; 50-278/92-82.) (See August 8-16, 1998, for a related incident.)

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

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

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

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

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

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

March 10, 1993 - During a radiological safety inspection (February 8-9, 1993 and March 1-2, 1993), relating to a “breakdown of personnel access controls associated with the Transversing In-core Probe (TIP), the NRC found: “...control of personnel during such operations is considered very important as the TIPs represent one of the higher radiation sources that personnel have a

potential for encountering” (NRC IR 50-277/93-02; 50-278/93-02.) (For related incidents see June 22 and 25, September 24, October 4, and November 11, 1993; June 19 and November 29, 1994 and August 24, 1995.)

March 23, 1993 - High oxygen concentration was found in Unit- 2 containment during power operation. (NRC IR 50-277/93-03 and 50-278/93-03.) (See January 17, 1992 for a related incident.)- April 24, 1993 - Unit-2 was manually scrammed “following declaration of all reactor vessel level instrumentation served by the ‘2B’ condensing chamber inoperable” (NRC IR 50-277/93-06 and 50-278/93-06.) (See related incident on March 27 and July 26, 1992 and September 22, 1993.)

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

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

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

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

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

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

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

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

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

August 14, 1993 - Unit-3 was shut down after three of four residual heat pumps were deemed inoperable. The plant was operating at 100% power. (NRC IR 50-277/93-17 and 50-278/93-17.)- September 14, 1993 - The reactor feed pump tripped due to “flow oscillations” at Unit-3.

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

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

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

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

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

October 6, 1993 - “[C]ontrol switch for control room emergency ventilation left in the off position following restoration” (IR 50-277/94-04 and 50-278/94-04.)- November 11, 1993 “Unlocked high radiation door” (IR 50-277/94-04 and 50-278/94-04.) (See March 10, June 22 and 25, September 24 and October 4, 1993 and January 19 and November 29, 1994.)

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

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

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

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

January 19, 1994 - “During the inspection [October, 4-8 and November 8-10, 1993] the NRC reviewed the circumstances associated with three examples of failure by three different individuals to adhere to procedural requirements concerning entries to high radiation areas in two cases, and a respiratory protection required area in the third case.” A Severity Level III violation was announced by the NRC.
“Particularly disturbing to the NRC is the fact that the plant equipment operator, on October 27, and the engineer on October 29, willfully violated the radiological controls in that they understood that they were not to enter the areas, yet did so anyway to complete certain tasks without first meeting the necessary radiation protection requirements. The entry by the engineer on October 29 was more significant since he had been warned by health physics personnel not to enter the area pending receipt of air activity results, yet did so anyway” (Thomas Martin, NRC, Regional Administrator, January 19, 1994.) (See March 10, June 22 and 24, September 24 and October 4, 1993 and November 29, 1994 for related incidents.)

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

February 3, 1994 - Unit-3 was manually scrammed due to a Generator

Field Ground alarm. The reactor was operating at 100% power.- February 22, 1994 - During power restoration at Unit-2, a control rod (38-15) was mispositioned for approximately two minutes. (For related events see June 24, 1993, April 21, 1995 and February 15, 1997.)

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

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

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

March 31, 1994 - A high-pressure coolant injection leak was identified.
- Spring 1994 - "The Public Utility Commission (PUC) recently approved a settlement with PECO Energy Company (PECO.) PECO will give \$217,000 to a grant program for low income consumers and pay a \$24,000 fine for violating PUC regulations. For 1991, the PUC found 241 violations of the Commission's regulations. Many had to do with PECO's handling of billing disputes and service shut-offs" ("Utility Consumer Line," Bureau of Public Liaison, PA PUC, Spring/Summer 1994.)

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

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

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

May 26, 1994 - A Severity Level IV violation was issued after the NRC "identified requirements for collecting a representative sample of the water river flowing into the site were not being met" (Edward C. Wenzinger, Chief, Projects Branch 2, Division of Reactor Projects, NRC.)- June 16, 1994 - The NRC reported the following problems during Peach

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

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

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

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

"Peach Bottom Unit No. 3 was initially examined during its refueling outage in the fall of 1993. Although crack indications were identified at two locations, the Company presented its findings to the NRC and recommended continued operation of Unit No. 3 for a two-year cycle. Unit No. 3 was reexamined during its refueling outage in the fall of 1995 and the extent of the cracking identified was determined to be within industry-established guidelines. The Company has concluded, and the NRC has concurred, that there is a substantial margin for each core shroud weld to allow for continued operation of Unit No. 3. Peach Bottom Unit No. 2 was initially examined during its October 1994 refueling outage and the examination revealed a minimal number of flaws. Unit No. 2 was re-examined during its refueling outage in September 1996. Although the examination revealed additional minor flaw indications, the Company concluded, and the NRC concurred, that neither repair nor modification to the core shroud was necessary. The Company is also participating in a GE BWR Owners Group to develop long term corrective actions." (PECO Energy Company, Form-10/K-A, 1999, p. 1999) A three-inch crack was identified in the reactor vessel shroud at Brunswick-1 in the summer of 1993. Cracks have also been found in the coreshrouds of Dresden-3 and Quad Cities-1. All of these reactors are GE Mark 1 designs.

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

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

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

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

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

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

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

August 17, 1994 - "...procedures were not implemented for the operation of the reactor building [Unit-3] ventilation and standby gas treatment system" (PECO Energy, Gerald R. Rainey, Vice President, Peach Bottom Atomic Power Station, October 19, 1994.) A Severity Level IV Violation was issued. - August 18, 1994 - An NOV was issued relating to vision problems of a LRO.

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

Testing

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

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

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

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

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

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

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

October 10, 1994 - The NRC reported "four individuals entered the Unit 2 offgas pipe tunnel high radiation area (HRA), which was visibly posted as a HRA, and the individuals were not provided with the required radiation monitoring device, nor was positive control provided by an individual qualified in radiation protection procedures, nor did the individuals adhere to posted instructions regarding entry requirements, a requirement of the Radiation Work Permit under which the entry was made" (IR 50-277/95-05 and 50-278/95-05 and Notice of Violation.) (See October 31, 1994, November 29, 1994 and March 14, 1995 for related incidents and Notice of Violation.)- October 16 -17, 1994 The Unit-2 reactor pressure vessel (RPV) exceeded 212 degrees F. "After reviewing operators' involvement in this event, Region I management initiated continuous coverage of the Unit-2 start-up, to ensure that operators performed a controlled and safe return of the unit to power operation" (Richard W. Cooper, II, Director, Division of Reactor Projects, November 21, 1994.) Severity Level IV Violations were issued.

October 21, 1994 - FEMA assessed a Deficiency against the State of

Maryland Emergency Operations Center for communications failure during the full-participation exercise on August 22, 1994.

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

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

October 31, 1994 - The NRC reported "a Senior Reactor Operator (SRO) entered the Unit 2 high pressure coolant injection (HPCI) turbine room, which was visibly posted as a HRA, and the individual was not provided with the required alarming dosimeter, nor positive control provided by an individual qualified in radiation protection procedures, nor did the individuals adhere to posted instructions regarding entry requirements, a requirement of the Radiation Work Permit under which the entry was made" (IR 50-277/95-05 and 50-278/95-05 and Notice of Violation.) (See October 10, 1994, November 29, 1994 and March 14, 1995 for related incidents and a Notice of Violation.)
November 10, 1994 - A LER was filed for "Non-Conservative Flow Biased Setpoints." (See May 14 and October 24, 1994.)

November 18, 1994 - "A load drop to about 55% power occurred on November 18, 1994, to support cleaning of the main condenser waterboxes." Unit-2 returned to full power the following day. (IR 50-277/94-27 & 50-278/94-27.) (See May 31, July 16, September 10 and October 25, 1996; and, September 12, 1997 for related incidents.)- November 21, 1994 - The NRC proposed a Severity Level III Violation and an \$87,500 fine for the emergency service water configuration problem on August 3, 1994.

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

50-278/94-28.)

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

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

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

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

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

December 19-23, 1994 - An inspector "identified a condition where manual operation of fire protection system controls located outside of the vital security areas could affect the operation of vital safety systems" (William H. Ruland, Chief, Electrical Section, Division of Reactor Safety, NRC, February 3, 1995.) - December 20, 1994 - An NRC inspector determined there was poor control over the use of a non safety-related battery charger at Unit-2.

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

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

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

Projects Section 2B, Division of Reactor Projects, NRC.)

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

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

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

March 17, 1995 - "An automatic recirculation pump runback reduced power [Unit-2] to about 70% on March 17, because of a mis-conducted reactor feed pump test." (IR 50-277/95-04 and 50-278/95-04.) The incident was caused by an operator error. (See related incidents on March 4, 1996 and May 16 and June 7, 1998.)- March 19, 1995 - High Pressure Coolant Injection (HPCI) suction valve was mispositioned at Unit-2 due to operator error. A Notice of Violation was issued. (Severity Level IV.) "Also, two subsequent shift turnover panel walkdowns failed to identify the abnormal system line-up and allowed the HPCI system to remain in the abnormal lineup for 18 hours." (Clifford J. Anderson, Section Chief, Projects Section 2B, Division of Reactor Projects.)

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

April 10, 1995 - "The inspectors opened the three unresolved items pending review of your staff's assessment and planned corrective actions. The first issue addresses the possibility that, due to an equipment failure, a low pressure coolant injection sub-system (one of four) was not maintained with its piping full to prevent water hammer following an injection. The second issue deals with the secondary containment flood control portion of your emergency operating procedures, which could lead an operator to flood two emergency cooling pumps rooms, a condition outside the plant's design basis. Lastly, the third issue deals with inconsistencies between the standby liquid control system

inservice testing methodology and ASME Section XI requirements for pump run time before operational data is requested.” (Clifford J. Anderson, Section Chief, Projects Section 2B, Division of Reactor Projects.)

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

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

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

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

May 24, 1995 “...several events involving plant operators indicate a negative trend in plant operations performance. These instances include problems with procedural adherence, attention to detail, and control of maintenance activities.” Executive Plant Performance Results, Richard W. Cooper, NRC, Director, Division of Reactor Projects.)- June 10, 1995 - “Unplanned Engineered Safety Feature Actuation During Diesel Testing” caused a Licensee Event Report. (IR 50-277/95-15 & 50-278/95-15.)

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

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

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

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

July 10, 1995 - The NRC accepted the following changes at Peach Bottom, “... eliminating the Independent Safety Engineering Group composition

commitment while retaining the independent technical review function, relocating Nuclear Review Board requirements, and reducing the frequency of certain nuclear quality assurance audits.” (Michael C. Modes, Chief, Materials Section, Division of Nuclear Safety, Nuclear Regulatory Commission.)

July 17, 1995 - “Inspector review of the E-2 and E-4 emergency diesel generator modifications indicated that pre-existing drawing errors [see April 30, 1993] and insufficient post-modification testing caused both operating reactor units to be placed in a situation where only two emergency diesel generators (i.e., E-1 and E-3 operable; E-4 in a maintenance outage, while the E-2 output breaker would not automatically close) remained able to automatically respond to a loss of off site power or a design basis accident condition. The inspectors also identified that inadequate review of the modification led to a loss of power of an emergency power bus during testing, and the introduction of a design flaw such that E-2 and E-4 were not able to automatically perform their safety functions...” “The emergency diesel generator modification issues are of concern to us since your normal design and testing process did not uncover a basic error that would have led to the E-2 and E-4 machines being unknowingly inoperable. This condition could have remain unknown until challenged or until the Unit 3 Fall 1995 post outage loss of off site power testing. Based on these results of the inspection, three apparent violations were identified and are being considered for escalated enforcement action...” (Richard W. Cooper II, Director, Division of Reactor Projects, NRC.)
(See August 17, 1995, for enforcement information.)

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

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

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

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

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

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

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

August 18, 1995 - "HPCI [High Pressure Coolant Injection steam lines] system piping in both units is experiencing high vibration levels due to unknown causes." (IR 50-277/95-18 & 50-278/95-18.)- August 18, 1995 - The NRC identified a crack about 3" (length) by 2.5.

"...The crack is believed to be caused by intergranular stress corrosion (IGSC)." (IR 50-277/95-18 & 50-278/95-18.) Rich Janati of the Pennsylvania Department of Environmental Protection stated, "...the new cracks are not exactly on the core shroud. They are on the core spray line." (September 5, 1995.) (See June 30, 1994 and October 27, 1994 for related incidents.)

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

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

September 22, 1995 - At Unit-3 "an unexpected reactor recirculation pump (RRP) motor generator (MG) set trip occurred due to a maintenance technician inadvertently bumping a loose resistor lug in the RRP in the RRP MG control cabinet." (IR 50-277/95-22 & 50 278/95-22.) (See May 14, 1995.)

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

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

October 22, 1995 - Power was reduced to 90% at Unit-2 “in response to a loss of feedwater heating caused by a partial loss of offsite power. During the recovery from this event, PECO discovered that an existing ‘5B’ feedwater heater (FWH) leak had degraded. PECO returned reactor power to 100% until October 26, when PECO reduced power to 68% to isolate the ‘B’ FWH train and then limited Unit 2 power operations to 95% power. On November 4, PECO declared the ‘C’ safety relief valve inoperable because of a leaking bellows. On November 7, PECO returned the unit to 100% power after completing a safety evaluation allowing full power operation with one train isolated. Full power operations continued until November 20, when PECO reduced power to 95% to minimize vibration of the 2A reactor feed pump (RFP).” (IR 50-277/95-26 & 50-278/95-26.) - October 27, 1995 - An NRC inspection found two, technical unresolved issues: 1)...Peach Bottom fire protection program and the impact of inadvertent discharge of CSR (cable spreading room) carbon dioxide system on the installed safety equipment; and 2)...the appropriateness of Peach Bottom’s response to an inadvertent carbon dioxide discharge alarm.” (IR 50-277/95-24 & 50-278/95-24.)

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

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

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

December 12, 1995 - A Severity Level IV Notice of Violation was issued due to PECO’s failure to monitor drywell leakage at Unit -3. “Specifically, a

modification prepared by your engineering staff lead to the installation of drywell drain tank pump control instrumentation that did not function as designed. Further, post-maintenance testing should have identified the problem and did not. Operators also initially failed to identify that the drywell pumps were not functioning, based on changes in the calculated drywell leakage.” A similar incident occurred in October 1994 at Unit-2 according to the NRC. (Walter J. Pasciak, Section Chief, Projects Branch 4, Division of Reactor projects, NRC.) (See November 16, 1992 for a related incident.)- December 27, 1995 - On December 14, 1995, PECO and the NRC held a meeting to determine the causes of “weak performance” on operator exams. (See October 20, 1995.) The Company’s conclusions included “... the unrecognized need for senior reactor operator (SRO) candidates to have additional plant familiarization, the weak understanding of system details including protection and control logic, the need to upgrade the cognitive level of written questions, and the infrequent evaluation of the candidates’ ability to prioritize mitigating actions during simulator scenarios. In addition, your staff stated that your guidance for examination validation and proadministration review will be revised to promote prompt escalation of any unresolved examination concerns to PECO Energy management.” (Glenn W. Meyer, Chief Operator, Licensing and Human Performance Branch, Division of Reactor Safety, NRC, December 27, 1995.)

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

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

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

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

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

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

March 4, 1996 - Power was stabilized at 65% power at Unit 2 after “a

recirculation pump runback due to the 2B reactor feedwater pump (RFP) trip.” (IR 50-277/96-01 & 50-278/96-01.) (See related incidents on March 17, 1995 and May 16 and June 17, 1998.)- March 25, 1996 - The NRC issued two violations during a routine

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

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

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

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

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

May 9, 1996 - An Notice of Violation was issued when “Control Room Emergency Ventilation Filter Train ‘A’ Test, was identified as being out of sequence.” (NRC, August 6, 1996.) - May 31, 1996 - Power was reduced at Unit 3 to 62% “to allow condenser waterbox cleaning, control rod pattern adjustments, and other preventive maintenance activities.” (IR 50-277/96-04 and 50-278/96-04.) (See November

18, 1994; July 16, September 10 and October 25, 1996; and, September 12, 1997 for related incidents.)

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

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

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

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

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

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

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

August 2, 1996 - Power was reduced to 70% at Unit-3 "to transfer the steam jet air ejectors and repair a steam leak from the packing of the steam isolation valve." (IR 50-277/96-06 and 50-278/96-06.) (See August 10, 1996 for a related incident.)- August 6, 1996 - A Notice of Violation was issued after NRC inspectors

"noted three examples where station personnel performed activities without properly implementing the established written procedures. These procedural adherence deficiencies involved various parts of the site organization and indicated a decline in station procedural adherence." Walter J. Pasciak, NRC, Chief, Projects Branch 4, Division of Reactor Projects.

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

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

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

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

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

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

October 1, 1996 - The Nuclear Regulatory Commission (NRC) fined Thermal Science, Inc. (TSI) \$ 9 0 0 , 0 0 0 for “deliberately providing inaccurate or incomplete information to the NRC concerning TSI’s fire endurance and ampacity testing programs.” (James Lieberman, Director of Enforcement.) The fine was the largest assessed against a nuclear contractor and the second highest in the agency’s history. In 1992, the NRC declared TSI’s fire barrier, ThermoLag, “inoperable.” (For related incidents, see December 18, 1993, September 29, 1994, May 19, 1998, October 12, 1999, and July 21, 2000.)

October 6, 1996 - Unit-2 scrambled due to equipment problems. (See October 15, 1996 for a related incident. Also, see November 18, 1994 and May 31 and July 16, 1996 for related problems.)- October 9, 1996 - “Based on the results of this inspection, an apparent violation was identified and is being considered for escalated enforcement action...Specifically, the failure to establish adequate performance criteria that would demonstrate appropriate preventive maintenance for several systems and components was identified.” (NRC, James T. Wiggins, Director Division of Reactor Safety.)

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

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

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

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

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

December 18, 1996 - The NRC recognized two, Severity Level IV violations during an inspection from September 8, through November 9, 1996: "The first issue involved the failure to maintain an adequate contractor qualification program, to ensure the qualification of contractor personnel performing independent safety-related work activities. The second issue involved the failure of engineering and operation personnel to identify and prevent the calibration of average power range monitors outside of the technical specification limits. This resulted in a failure to enter a technical specification required shutdown action statement for inoperable average power range monitors." (Walter J. Pasciak, NRC, Chief, Projects Branch 4, Division of Reactor Projects.)-
December 20, 1996 - "Based on the results of this inspection, an apparent violation was identified and is being considered for escalated enforcement...The apparent violation concerned the failure to control safeguards information in accordance with NRC requirements. The circumstances surrounding this apparent violation, the significance of the issue, and the need for lasting and effective corrective action were discussed with members of our staff at the inspection exit meeting on November 27, 1996." (James T. Wiggins, Director, Division of Reactor Safety, NRC, December 20, 1996.)

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

February 7 and March 6, 1997 for related developments.)

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

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

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

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

January 24, 1997 - PECO declared the EDG [E1] inoperable due to observed power swings of 200 to 300 KW while increasing load, 500 KW at rated load, and a 500 KW during shutdown.” (IR 50-277/97-01 & 50-278/97-01.) (See December 10 and 27, 1996 and February 7 and March 6, 1997 for related developments.)- February 1, 1997 - “...an unexpected reactor water conductivity increase “ followed a “load drop.” (IR 50-277/97-01 & 50-278/97-01.)

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

February 10, 1997 - Two violations were identified in the turbine building. “These violations involved failure to assure that the turbine building atmosphere was processed through the turbine building gaseous waste treatment system as specified in the ODCM, and failure to provide an adequate safety evaluation to support certain aspects of the modification in accordance with 10

CFR 50.59.” (John R. White, NRC, Chief, Radiation Safety Branch, Division of Reactor Safety.) (See May 7, 1997, for NRC rebuke on PECO’s lack of followu p.)

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

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

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

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

March 9, 1997 - A manual reactor scram was initiated at Unit 3 “...as operators lowered reactor power to allow a drywell entry to correct the low lube oil level, the A recirculation pump tripped...” The reactor returned to operation three days later. (IR 50-277/97-02 & 50-278/97-02.)- March 24, 1997 - The Dow Jones utilities average “has dropped 8.1 percent since reaching a 52-week high in late January on the expectation that the Fed will soon raise interest rates, investors said. Niagara Mohawk Power Corp., PECO Energy Corp. and Unicom Corp. led the drop. The Dow Jones Industrial average, meanwhile, is little changed for that period.” (Bloomberg Business Service.)

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

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

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

incident.)

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

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

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

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

April 15, 1997 - A high pressure water service system leak developed at Unit 3. “The size of the hole was determined to be about 2 mm in diameter, and the leak rate was less than 1 gallon per minute.” (IR 50-277/97-02 & 50-278/97-02.) - May 7, 1997 - A follow-up Inspection dealing with violations identified by

the NRC on February 10, 1997, found that PECO failed to provide data: During the telephone discussion we conveyed several concerns with the [PECO’s] response. Principally, the discussion of reasons for the violations did not clearly identify root or proximate causes. Accordingly, we could not conclude that corrective actions you specified effectively addressed the cause of the violation.

Additionally, your response indicated that your safety evaluation was based on the premise that the Turbine Building was maintained at a negative pressure so that air would not be expected to be released through the penetrations. However, no information was provided as to why the Turbine Building was not maintained at a negative pressure, as presumed by your safety evaluation. Further, no commitment was made to document and report your estimate of the unmonitored release...

(James T. Wiggins, NRC, Director, Division of Reactor Safety.)

May 9, 1997 - PECO entered into an agreement with Delmarva Power & Light Company and Public Service Electric and Gas Company (PSE&G) regarding the shut down of the Salem nuclear power plant. “Under the terms of

the settlement, PSE&G will pay the Company [PECO] \$69.8 million and Delmarva \$12.1 million. The settlement also provides that if the current outage exceeds 64 reactor unit months, PSE&G will pay the two companies an additional \$1.4 million per reactor unit month, up to an aggregate of \$17 million, to be divided proportionately. A reactor unit month is a month during the current outage in which a unit is off-line. (J. F. Paquette, Jr., Chairman of the Board, "Report to Shareholders," June 1997.)

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

June 1997 - "Common stock earnings for the quarter ended March 31, 1997, were \$0.49 per share, \$0.16 per share lower than the earnings of \$0.65 per share for the first quarter of last year...Earnings for the twelve months ended March 31, 1997 were \$2.08 per share as compared to \$2.64 per share for the corresponding period in 1996." (J. F. Paquette, Jr., Chairman of the Board, "Report to Shareholders," June 1997.)- June 4, 1997 - Two violations were identified by the NRC including failure to full "understand" or "review" the significance of a reactor feed pump trip and temporary scaffolding was located too close to safety-related equipment.

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

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

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

July 10, 1997 - Problems relating to the Main Control Room Emergency Ventilation radiation monitor were identified by the NRC. (See May 15, 1998,

for additional issues and a violation resulting from this deficiency. Also, see September 12, 1997, for a related problem.)

July 17, 1997 - During the SALP evaluation, the NRC found "...there were several instances where operating procedures, surveillances, and tests were not consistent with the design and licensing basis...However, some balance of plant equipment problems challenged operators, indicating continued attention to equipment performance is needed. Also, we found problems with the development and management oversight of efforts to implement the maintenance rule program." (Hubert J. Miller, NRC, Regional Administrator, July 17, 1997.)- July 24, 1997 - The NRC found: "...in one instance, an operator installing a jumper caused the loss of high pressure coolant injection automatic initiation capability for a short period of time. Our review of the issue found procedural guidance provided to the operator was lacking, in that, it did not specify how to install the jumper or precautions on possible problems that could occur. Maintenance personnel performed, well...However, in one instance a single control rod scrambled due to maintenance technicians pulling the wrong fuses during electrical isolation...Your evaluation and control of non-routine effluent/material release paths, such as sampling and analysis of sewage solids and burning of slightly contaminated oil, showed some weaknesses, indicating a need for further attention in this area....Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred...This violation is of concern because several grand master keys were not properly controlled." (Paul D. Swetland, Acting Chief, Projects Branch 4, Division of Reactor Projects, July 24, 1997.)

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

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

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

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

September 2, 1997 - At Unit-2, "a fire occurred in the 3B circulating water pump motor." (IR 50-277/97-06 & 50-278/97-06.) (See November 6, 1995 and January 14, 1998 for related incidents.)- **September 11, 1997** - "PECO Energy Company (NYSE: PE), of Philadelphia, and British Energy, of Edinburgh, Scotland, announced today formation of a joint venture, AmerGen Energy Company, LLC, to pursue opportunities to acquire and operate nuclear generating plants in the United States." (Company Press release.) (See June 5 and October 3, 1997 and May 27, July 17, 1998, June 25, 1999, and June 9, 2000, for related developments.)

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

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

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

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

October 8, 1997 - "Enron Corp. is seeking to takeover PECO Energy Co.'s Pennsylvania service area, offering to lower customers' electric rates by 20 percent and assume \$5.5 billion in Peco costs." Patriot News, October 8, 1997. (See November 28, 2001, for a related development.)- October 15, 1997 - "We noted during this period two examples where personnel either failed to follow procedures or failed to take adequate selfchecking measures, resulting in one case in the conduct of a surveillance test on the wrong unit. Moreover, two days after this inspection period ended, your staff identified an event in which a safety-related high pressure service water (HPSW) pump was electrically uncoupled without being isolated because contractor personnel thought they were working on a non-safety-related service water pump that was electrically isolated. This event highlighted weaknesses in procedural adherence, particularly in the use of work package documentation at the job site, self-checking, and a questioning attitude that led to multiple breaches in work process barriers.

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

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

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

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

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

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

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

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

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

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

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

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

Continued on the following page..."Multiple examples of a violation of NRC requirements were identified during this period. Specifically, three examples of a failure to follow procedures were identified, two in the Operations area and one in the Maintenance area. We are concerned with these examples of procedure non-adherence given their impact on plant equipment and their potential industrial safety implications (i.e., one which directly caused a Unit 2 reactor scram [November 9, 1997 at

100% power] and another which significantly contributed to maintenance personnel inadvertently rendering a safety-related HPSW [high pressure service water] pump inoperable [September 22, 1997] without it being electrically isolated during the conduct of work.) (See October 15, 1997 for a related HPSW event.)

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

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

December 23, 1997 - "...plant management chose to shut down Unit 2 due to problems with the pressure regulator control circuit. On December 15, the back up EHC [electro-hydraulic control] pressure regulator 'B' took control of reactor pressure without operator action." (IR 50-277/97-08 & 50-278/97-08.)
- December 29, 1997 - "...all nine bypass valves unexpectedly opened at 155 psig EHC [electro-hydraulic control] pressure during the normal depressurization/cool down of Unit 2. Operations and engineering personnel failed to understand the effect of the EHC system of a temporary plant alteration...This lack of system understanding contributed to all bypass valves unexpectedly opening which resulted in a reactor vessel level transient." (IR 50-277/97-08 & 50-278/97-08.)

December 29, 1997 - "...Unit 2 was shut down to replace amplifier card and potentiometer assemblies." (IR 50-278/97-08; 50-277/97-08.) (See December 23, 1997 for a related incident.)- January 1, 1998 - "... the Unit 2 main turbine tripped on main oil pump low pressure during plant start-up after the turbine rolled to a speed of 1400 RPM. Operations personnel were unaware that the turbine had been rolling for over two hours just prior to the trip. This issue appeared to involve a failure of an instrument and control test document to restore the original [electro-hydraulic control] EHC [electro-hydraulic control] system alignment after testing and the failure of operations personnel to fully follow procedures. Concerns were also identified with the pulling of control rods to increase reactor pressure during this event and failure of operations personnel to recognize status of the main turbine or turbine control systems." (IR 50-277/97-08 & 50-278/97-08.)

"Several examples of weak control room oversight of activities were noted from the Unit 2 main turbine trip during start-up on January 1, 1998...1) The Control Room Supervisor directed the pulling of control rods to increase reactor coolant system pressure while the turbine condition remained known. 2) Shift turnover and the shift meeting occurred while the turbine was in this unknown condition even though members of the crew knew that the turbine had come off of the turning gear. 3) The crew with the watch during most of this event had

not received any just-in -time training such as simulator runs even though this was the first reactor start-up for the Plant Reactor Operator and the Control Room Supervisor.” (IR 50-277/98-01, 50-278/98-01.)

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

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

January 3, 1998 - “...operations personnel discovered that the Unit 2 reactor operator (RO) failed to perform the technical specification (TS) surveillance requirement for verification of proper flow in the recirculation loops following start-up” (IR 50-277/99-01; 50-278/99-01.)- January 4, 1998 - “...the main steam line bypass, BPV-1, unexpectedly opened approximately 25% several times while the Unit 2 reactor was raising reactor power from 96% to 100%. Instrument and control room technicians unknowingly introduced speed error bias in the speed control portion of the EHC [electro-hydraulic control] system after they tightened a loose connection during replacement activities for the EHC pressure control unit. Instrument and control personnel failed to understand what effect tightening the loose connection on the speed control would have on the speed bias signal and EHC system.” (IR 50-277/97-08 & 50-278/97-08.)

January 5, 1998 - “...during maintenance on the 2 ‘C’ RHR heat exchanger, technicians found broken glass, an electrical extension cord, and metal straps on the RHR (shell) side of the heat exchanger. Technicians removed the glass but were unable to remove the cord and metal straps. After further investigation, PECO determined that the foreign material had been previously identified in the heat exchanger in 1994.” (IR 50-277/97-08 & 50-278/97-08.)

January 5, 1998 - “Illinois Power said Monday it contracted an outside nuclear team from PECO Energy Co to manage its Clinton Power Station, which has been shut down since September 1996...Clinton is a 950-megawatt boiling water reactor. Water McFarland, vice president of PECO’s Limerick Station, is Illinois Power’s new chief nuclear officer. He assumes responsibilities immediately.” (R e u t e r s, January 5, 1998.)

“Under the three-year contract, which may be renewed for an additional five years, a core group of PECO Nuclear employees will provide management

expertise to Illinois Power.” (PECO Energy, 1997 Annual Report, February 2, 1998, p. 4.)

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

January 14, 1998 - At Unit 2, “power was reduced to 97% when condenser vacuum decreased after the 2 ‘C’ circulating water pump failed to start and the pump discharge valve failed [to] open during post-maintenance testing.” (50-277/97-08 & 50-278/97-08.) (See November 6, 1995 and September 2, 1997, for related incidents.)- **January 28, 1998** - “The practice of the control room supervisor leaving the main control room work station for brief periods without temporary relief from another senior reactor operator demonstrated weak oversight of control room activities.

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

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

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

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

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

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

February 13, 1998 - “Unit 3 began the period operating at 94% power.

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

March, 1998 - “The Company reported a net loss for 1997 of \$1.5 billion or \$6.80 per share. Included in these results was an extraordinary charge of \$3.1 billion (\$1.8 billion net of taxes), or \$8.24 per share, in the fourth quarter to reflect the effects of the December 1997 PUC order (as revised in January 1998) in the Company’s restructuring proceeding.” (Report to Shareholders, C.A. McNeill, Jr., Chairman, President and CEO, PECO Energy.)- March 1998 - “PECO personnel identified that five Fire Areas in the plant, containing 25 rooms, did not contain automatic fire detection systems...PECO intends to submit an exemption request...for the identified Fire Areas.” (IR 50-277/98-10, 50-278/98-10; NOV.)

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

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

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

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

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

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

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

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

March 22, 1998 - The NRC noted "reactor engineers did not recommend positive actions to reduce a thermal limit ratio when approaching the Technical Specifications limit, which did not meet operations department expectations for conservative plant operations." (IR 50-277/98-02; 50-278/98-02.)- March 23, 1998 - PECO "identified that they failed to properly implement the improved Technical Specification Surveillance Requirement 3.4.9.4 for the start of the first recirculation pump. Between January 18, 1996, and March 23, 1998, operations personnel were not verifying that the temperature differential between the reactor coolant in the recirculation loop being started and the reactor pressure vessel coolant was within 50 degrees F. On October 27, 1997, the 'B' recirculation pump was started with a differential of 84 degrees F. Although this did not exceed design limits nor impact fuel performance, it was a violation of Technical Specification Surveillance Requirement 3.4.9.4. (Section 08.1). (IR 50-277/98-06; 50-278/98-06; NOV.) (See October 29, 1997, for a precursor event.)

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

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

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

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

"... inspectors noted increased noise in the control room during peak activity periods. During these periods, there were 15 to 20 people in the control room. During these periods order in the control room was challenged. During periods with fewer personnel in the control room and decreased activity, the inspectors observed that operation of the unit became more deliberate." (IR 50-277/98-02; 50-278/98-02.)- March 30, 1998 - A violation was recorded by the NRC form PECO's

failure "during several months to maintain the 2' A' Reactor Feedwater Pump Turbine High Water Level Trip function operable as required by Technical Specification...We concluded during this inspection that your corrective actions

for the first two failures were not comprehensive. There were a number of previous opportunities to identify and correct the root cause of these events particularly through at-power verification testing. Also, we noted that the 2' A' feedwater system change of status maintenance to a maintenance rule (a) 1 system was not timely. Although this change met your administrative requirements, we viewed the status change as untimely based on the technical specification significance." (Charles W. Hehl, NRC, Director, Division of Reactor Projects.)

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

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

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

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

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

"The fourth violation contained several examples of inadequate procedures and control room operators failing to implement operations procedures which resulted in the unexpected trip of the Unit 2 main turbine on January 1, 1998. The procedures were inadequate since they failed to restore the ElectroHydraulic Control system to the alignment requirement for reactor start-up.

Also, operations personnel failed to adequately implement procedures when they did not recognize the abnormal main turbine status, position of the turbine control valves, or the selection of the speed set for the EHC system for several shifts prior to the main turbine trip. "We were concerned with the violations described above, especially the

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

"The last violation resulted from Unit 3 exceeding the licensed power level up to 0.6% between October 22, 1995 and January 21, 1997. PECO Energy

Company operated the reactor at a steady state power level up to 100.6% of rated power. We were concerned that your staff failed to recognize errors in the calibration of feedwater temperature instruments even after deficiencies were identified with the equipment used to calibrate these instruments. The inaccurate feedwater temperature instruments resulted in power levels above the licensed limit for over 15 months.” (NRC, Clifford J. Anderson, Chief, Projects Branch 4, Division of Reactor Projects.)

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

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

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

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

May 14, 1998 - “Four licensed operators missed training for the two year requalification period that ended in March 1996 and never made up the missed training within a reasonable time thereafter. This was unresolved pending NRC staff review for enforcement action with respect to 10 CFR 55.59 a (1). (IR 50-277/98-04; 50-278/98-04 and NOV.)- May 14, 1998 - The NRC identified two violations relating to licensee operator requalification training (LORT). “The first violation involved a failure to assure sufficient differences in the job performance measure (JPM) portion of the operating test administered to different crews on different weeks. This violation is of concern because of the potential for precluding the identification of retraining needs. The second violation involves the failure of your operating test to evaluate SROs [senior reactor operators] fulfilling the role of the control room supervisor in their ability to execute the emergency plan. This violation is of concern since the SROs may be called upon to execute the plan in the absence of shift managers.” (IR 50-277/98-04; 50-278/98-04.)

May 14, 1998 - The NRC identified a violation “for failure to include the area of radiation monitoring system within scope of the maintenance rule program...This violation is of concern since scoping problems of this type have been identified through recent operating experience and findings from NRC

maintenance rule baseline inspections and the violation represents an apparent failure to incorporate this information into your program.” (IR 50-277/98-04; 50-278/98-04; and NOV.)

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

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

May 16, 1998 - “During a Unit 2 power down evolution on May 16, 1998, operators reduced speed on an incorrect reactor feed pump, resulting in a reactor level excursion and recirculation system runback. The event was indicative of poor operator performance, reflecting weaknesses in communications, self-checking, and peer/supervisory review.” (IR 50-277/98-06; 50-278/98-06; NOV.) (See related incidents on March 17, 1997, March 4, 1996; June 7 and July 13, 1998.) - May 19, 1998 - The NRC issued a “confirmatory order modifying the license of Peach Bottom Units No. 2 and No. 3 requiring that the Company complete final implementation of corrective actions on the Thermo-Lag 330 issue by completion of the October 1999 refueling of Peach Bottom Unit No. 3”. (PECO Energy Company, Form-10/K-A, p. 10). (See September 12, 1994, October 1, 1996, October 12, 1999, and July 21, 2000, for background information.)

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

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

May 29, 1998 - At Unit 3, “unit load was reduced to clean condenser

water boxes.” (IR 50-277/98-06; 50-278/98-06; NOV.)

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

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

Continued on the following page...“Engineering personnel failed to recognize the potential for high vibration

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

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

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

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

June 9, 1998 - The NRC identified two violations during an inspection. “The first violation involved a high pressure coolant injection (HPCI)

system operating procedure [discovered by the NRC on March 22, 1998] that did not provide adequate instructions regarding the HPCI pump turbine vibration monitoring system. The second violation was the failure of health physics personnel to follow radiation area control procedures regarding posting of an open door to a potentially high radiation area.

“We are also concerned about a number of instances of plant valves being identified out of their required or expected position. Although several of these valves were in non-safety related systems, three valves were in safety related systems. We determined that, taken collectively, these items represented a weakness in plant status control.” (Clifford J. Anderson, Chief, Projects Branch 4, NRC, Division of Reactor Projects.)- June 9, 1998 - “...plant personnel and the inspectors observed smoking and small flames on the E1 EDG exhaust manifold flanges, and the oil occasionally flashed and self-extinguished as the temperature of the exhaust manifold increased during EDG loading. The smoking and leakage essentially stopped several minutes after the EDGs were fully loaded.” (See May 5, 1998, for a precursor event.)

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

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

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

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

July 9-10, 1998 - The NRC observed “instrument and plant control personnel failed to comply with the technical specification action time

requirements for placing ; 'A' channel of the main control room emergency ventilation (MCREV) system in trip within six hours of making the channel inoperable...This non-reporting, licensee identified and corrected violation is being treated as a Non-Cited Violation..." (IR 50-277/98-02, 50-278/98-02.)

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

July 11, 1998 - Unit load was reduced to 74% at Unit-3 for main steam isolation valve testing.- July 13, 1998 - "A reactor level water excursion on July 13, 1998, during transfer between feedwater control system computers revealed that instrument and control personnel did not have sufficiently specific written guidance or criteria on computer signal differences for performing the computer transfer. Instrument and control personnel relied on inappropriate assumptions on acceptable computer signal differences." (IR 50-277/98-07, 50-278/98-07.) (See May 16 and June 7, 1998, for related incidents.)

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

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

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

August 6-19, 1998 - During a walkdown, the NRC determined "that the actual wiring did not match the schematic drawings. Although the schematics showed that the wiring for the MOVs [motor operated valves] on both units were the same, the as-found did not match the schematic drawings for 3 CS suction MOVs." (IR 50-277/98-08, 50-278/98-08.) "PECO experienced three failures of motor operated valves (MOV) during 2R12. One other MOV was in a significantly degraded condition when inspected. All of these MOVs were safety-related." (IR 50-277/98-10; 50-278/98-10; NOV.) (See January 21, 1993, for a related incident.) - August 10, 1998 - During the calibration of the 'C' detector, the [chemistry] technicians inadvertently removed and dropped the "D" detector. The technicians performing this work did not stop and notify the control room operations personnel or Chemistry Supervision that they had removed the "D" detector and dropped it...The behavior of the technicians to not tell details about

the event for several days, and only when asked, was not acceptable. The licensee corrective actions were narrowly focused on the chemistry department and did not include the other departments at the station. Procedural nonadherence has been an issue at the station for the past year.” (IR 50-277/98-10, 50-278/98-10.)

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

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

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

A Notice of Violation was issued.

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

A Notice of Violation was issued.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

October 28, 1998 - The use of an improperly sized jumper led to an unplanned core spray loop inoperability and "extended the inoperability period for all four emergency diesel generators (EDG)." (IR 50-277/98-10, 50-278/98-10; NOV.)- November 7, 1998 "...operations personnel in the Unit 2 control room observed that the megawatt electric output did not agree with the reactor core thermal power." (IR 50-277/98-11, 50-278/98-11.)The NRC "treated" this incident as a Non-Cited Violation. (This was the fifth Non-Cited Violation since June 1998. Please refer to November 30, 1998, and July 27, 1999, for more data on "Non-Cited Violations" .)

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

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

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

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

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

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

December 11, 1998 - "Contractor personnel performing modification work on the Unit-2 scram air header exhibited poor foreign material control practices, contrary to specific work order instructions. Weaknesses in contractor oversight were identified by these poor practices. (IR 50-277/98-10, 50-278/98-10; NOV.) (See March 25 and May 1, 1998, for related incidents.)- December 19, 1998 - Unit load at Unit 2 "was reduced to 60% (See also January 2, 1999) to repair a leak on the B3 feedwater heater extraction steam line." (IR 50-277/98-11, 50-278/98-11.)

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

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

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

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

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

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

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

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

1) three licensed operators failed to complete your facility licensed operator requalification program for the period April 1994 through March 1996 and the training was not made up until April 1998, in some cases; 2) the failure was due to a program inadequacy (systematic cause) and the inadequacy apparently caused an inaccurate license renewal application to be submitted to the NRC upon which the NRC issued a renewed operator license. (Curtis J. Cowgill, NRC, Chief, Projects Branch 4, Division of Reactor Projects.)- February 1, 1999 - An NRC inspection team found two examples in which RCIC [reactor core isolation cooling] system design basis information was not properly translated into procedures." A Notice of Violation was issued. (50-277/98-09, 50-278/98-09 & NOV).

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

conditions occur.” (IR 50-27(278)/99-02.)

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

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

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

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

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

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

March 11, 1999 - Documentation of two Security Level IV violations were reported by the NRC: 1) Failure to Energize Trip Relay for Main Control Room Emergency Ventilation; and, 2) Failure to Properly Maintain Procedures for High Pressure Coolant Injection (HPCI) System Manual Operation.- March 12, 1999 - At unit-3, “RCIC [Reactor Core Isolation Cooling] system isolation occurred during realignment of the system following back seating of an inboard steam isolation valve.” (50-277(278)/99-02.)

March 18, 1999 - The potential for a fire from flooding was identified at Units 2 & 3, and classified as an “outside design basis” event. (#35485.) (See August, 1999, for more information.)
In addition, “Between March and October 1998, PECO engineering identified five fire areas, containing cables for safety-related or safe shutdown equipment that did not have automatic fire detections systems as required...” (IR 50-277 & 278/99-05.)

April 6, 1999 - Security staff “detected a disabled a vital door area door

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

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

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

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

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

"A wiring error dating back to original construction was discovered which resulted in non-conservative inputs to channels of the Unit-2 rod block monitor for 29 of 185 control rods." (Bold face type added.) (50-277(278)/99-02.) - May 6, 1999 - "PECO found a motor brake on the 2'C' RHR [Residual heat Removal] pump torus suction valve that should have been removed during a modification in 1988. The inspectors were concerned that other safety-related MOVs included in the 1988 modification could have motor brakes installed." (Bold faced print added.)

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

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

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

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

278/99-04).

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

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

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

June 10, 1999 - Plant “operators experienced a temporary loss of the Unit 2 plant monitoring system (PMS) computer. They reduced power slightly to ensure average power limits were not exceeded, since the average power monitoring function of PMS was no longer available.” The loss of safety parameter display system, was reported to the NRC (IR 50-277 & 278/99-05.)-
June 11, 1999 - Load was reduced at Unit-3 “to about 65% power for scram time testing and other maintenance activities.” Unit-3 achieved full power two days later. (IR 50-277 & 278/99-05.)

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

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

June 25, 1999 - PECO’s stock price fell \$2.50 on June 17 and 18, 1999 per share “after management warned financial analysts second quarter earnings were trailing expectations. “During a conference call Thursday discussing AmerGen’s agreement to purchase the Nine Mile Point nuclear power plant on Lake Ontario in New York State for \$163 million, PECO management said the company will have second quarter operator earnings of about 31 cents a share...” (Reuters, Jim Brumm, June 25, 1999.) (See September 11, 1997, for background data on AmerGen, and refer to May 12, 2000, for collapse of the Agreement).

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

July to September, 1999 - Power was lost to the 351 line on three separate occasions from July to September 1999 due to storm damage. The loss of the 351 line affects the station blackout (SBO) line and results in a loss of power to the technical support center (TSC). The loss of power to the TSC results in a loss of emergency assessment capability and, if greater, than an hour, an one hour non-emergency report to the NRC if required....In response, PECO initiated a York County Reliability Enhancement Plan to address immediate reliability issues for the 351 and 341 (a backup supply to the 351) lines..." (IR 05000277/99008, 05000278/99008.) - July 7, 1999 - "...operators observed that the 'A' ESW pump flow rate to the emergency diesel generators (EDGs) was in the In-Service Test (IOST) alert range specified in the surveillance procedure...Engineering placed the 'A' ESW pump on an increased testing frequency and conducted an investigation into possible causes of the degraded flow." (IR 50-277/99-06; 50-278/99-06; and, 72-1027/99-06).

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

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

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

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

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

August, 1999 - "If a utility has operated a reactor outside of the safety parameters established in its operating license, i.e., "outside design basis," it is required to document it in a daily event report filed with the NRC. The more event reports filed by a nuclear reactor, the less certain that the reactor and its safety systems will operate as designed." (James Riccio, Public Citizen, August, 1999, Executive Summary.) (Refer to October 20 1997 & January 29 and March 18, 1999, for specific "outside design basis" events.)- August 4, 1999 - The NRC reviewed senior reactor operator exams:

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

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

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

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

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

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

September 30, 1999 - A turbine trip, followed by a scram, occurred at Unit 2. "Following the reactor scram...a heat up rate of 170 degrees in 45 minutes occurred in the 2A recirculation loop. The root cause of this event, as

presented in the licensee event report, was in error and will be revised to reflect that the unreliable bottom head drain temperature indication prevented starting the recirculation pump.” Deemed a Severity Level IV Violation, the NRC downgraded the event to a

Non-Cited Violation. This was the ninth Non-Cited Violation since June 1998. (IR 050277/99008, 05000278/99008.)

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

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

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

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

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

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

November 2, 1999 - “Although PECO engineering was aware that the Unit-2 high-pressure coolant injection (HPCI) steam admission valve could fail to open because of thermal binding when the system was isolated for maintenance, engineering personnel failed to prevent this type of failure during maintenance...” (IR 0500277/1999009, 05000278/1999009 & 07201027/1999009.)- November 8, 1999 - during an NRC inspection, two violations relating to Engineering Support of Facilities and Equipment were identified:

“The failure to adhere to procedural requirements in the performance of

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

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

- November 11, 1999 - A Non-Cited Violation was identified when the "2B CS pump room cooler failed to start during a routine quarterly surveillance test. Operations personnel determined that the room cooler fan switch was not fully turned to the 'run' position which prevented the fan from starting automatically when the pump was started." PECO also filed a LER. This was the eleventh Non-Cited Violation since June 1998.

(IR 05000277/ 1999009, 05000278/ 199009 & 07201027/ 199009.)

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

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

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

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

(See October 19, 2001, for a related acquisition by PSE&G).- December 27, 1999

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

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

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

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

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

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

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

January 26, 2000 - "...a Unit 3 turbine building equipment operator identified a degrading condition on the 3'B' RPS flexible coupling." (IR 05000277/1999010, 05000278/1999010 & 07201027/1999010.) - February 6, 2000 - "...during the transfer of a non-safety 4KV circuit breaker on the 2'b" control rod drive (CRD) pump, the breaker did not close as expected due to a mechanical failure of the anti-pumping relay." (IR 05000277 & 278/2000-001.)

February 25, 2000 - "...Unit 3 load was reduced to approximately 63% power to perform a control rod pattern adjustment, scram time and primary containment isolation system testing and replacement of the outboard main

stream isolation valve DC solenoid valves”. (See May 11, 2000, for a similar challenge). (IR 05000/277 & 278/2000-001).

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

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

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

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

March 23, 2000 - “...while the HPCI system was inoperable for surveillance testing, the Unit HPCI MO-16 would not re-open after being taken to the shut position. Troubleshooting revealed that this failure was caused by high resistance associated with a contact in the open logic circuit. Maintenance personnel cleaned the contact and initiated actions to replace it. “A similar event occurred in November 1998, when the same valve (MO-16) on Unit 2 failed to close due to an auxiliary contact problem. The contacts for this valve were recently removed for analysis during a scheduled maintenance activity on March 15, 2000. The cause of this failure was under investigation (PEP 10009425) at the time of the Unit 3 failure...“...Engineers appropriately recognized the possible recurring nature of this issue and the potential impact on system operability for similar failures on other DC motor-operated valves in the HPCI and reactor core isolation cooling systems. The inspectors noted that auxiliary contact failures have occurred in several safety and non-safety related valve breakers over the past few years. These failure have been documented in NRC Inspection Reports 50-277(278)99006, 98001 and 97005. (IR 05000277 & 278/2000-001).

March 24, 2000 - PECO Energy reached a comprehensive settlement

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

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

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

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

April 25, 2000 - The NRC "determined that PECO Nuclear did not confirm or verify that the leak testing gauges used for preparation of a Type B shipping cask...conformed to accuracy requirements...The issue of PECO Nuclear's ability to assure proper closure and leak testing of shipping casks is more than a minor issue since such inabilities could be a precursor to more significant events."
The NRC deemed this infraction a Non-Cited Violation. This was the thirteenth Non-Cited Violation since June 1998.(IR 05000277 & 278/2000-002). (See June 28, 1999 & August 3, 2000, for related incidents.) May 2, 2000 - "...a supervisor at the York County '911' center inadvertently activated the York County portion of the alert and notification sirens". (IR 05000277 & 278/2000-002).

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

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

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

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

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

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

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

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

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

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

May 28, 2000 - "The most recent packing gland follower cracking event

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

BLACKOUTS & HIGH PRICES: SUMMER 2000

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

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

“The action was taken to avoid emergency rolling blackouts where power is interrupted for short durations - typically 20 to 30 minutes.” (Up d a t e, The Department of Environmental Protection, May 12, 2000, p. 2).

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

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

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

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

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

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

delay.” Press Release, U.S. Department of Energy. July 20, 2000.)

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

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

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

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

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

The NRC issued a Severity Level IV violation “related to the

identification and resolution of problems on leakage of contaminated reactor coolant system water caused by cracking of instrument root valve packing gland followers.”

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

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

August 23, 2000 - “Operators reduced power [at Unit 2] to approximately 68% to remove the ‘B’ feedwater heater string from service due to suspected leaks and on August 24 returned the unit to 83% power.” (See September 7 & 13, 2000, for related incidents.) (IR 05000277 & 278/2000-010.) - September 7, 2000 - “Operators reduced power [at Unit 2] to approximately 16% in response to pressure perturbations in the ‘B’ feedwater heater string and on September 8 returned the unit to 75% power.” (See August 23 & September 13, 2000, for related incidents.) (IR 05000277 & 278/2000-010.)

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

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

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

“This issue was considered to be of very low safety significance...a Non -

cited violation “ was issued. This was the sixteenth Non-Cited Violation since June 1998. (IR 05000277 & 278/2000-010.)

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

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

September 28, 2000 - “...operations personnel determined, during inservice testing, that ESW [Emergency service water] check valve 2-33-514 failed [sic] open. The check valve is designed to prevent reverse flow from the safety-related ESW into the Unit 2 non-safety related water service system. Operators declared both ESW systems inoperable, because ESW flow to the EDGs and emergency core cooling system room coolers and motor oil coolers could be inadequate...” “The inspectors and operations personnel noted that, during two periods in which the ESW system was declared inoperable, operators did not address the operability status of the EDGs or associated Technical Specifications action statements and/or applicable limiting conditions for operation of Unit 2 which was in Mode 5 (refueling) at the time...” “The inspectors determined that this event required further evaluation in the significance determination process.” (See October 1 through November 18, 2000, for an identical problem). (IR 05000277 & 278/2000-010.)

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

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

“This issue caused the ESW system and the EDGs to be degraded for a period of up two years. This finding was of very low safety significance because, although the ESW flow rate to the EDGs was below the design basis minimum value engineering personnel determined that the EDGs would have remained

available during accident conditions.” A Non-Cited Violation was issued.” This was the seventeenth Non-Cited Violation since June 1998. (See September 28, 2000, for a related incident.) (IR 05000277 & 278/2000-012.)

October 2, 2000 - Three unplanned isolations of the shutdown cooling (SDC) occurred. “Engineering personnel stated that these events were caused, in part, by an ILRT (Integrated Leak Rate Test) procedure that did not fully account for the reduced operating margin to the high pressure isolation setpoint...” “At the time of the isolations during the ILRT, SDC was the only operable decay heat removal system...” Continued on the following page... “The inspectors identified that there were previous occurrences of SDC isolations on Unit 2 that were not fully investigated. For example, on October 2, 1999, a similar SDC isolations occurred, but no cause was identified. The pressure switches were found to be in calibration. No PEP corrective action plan document was initiated. Further, in April 2000, engineering personnel initiated an action item to troubleshoot isolations, but no action had been taken prior to the outage. The inspectors brought this issue to the attention of engineering management. Engineers also noted that there were two other not-fully-understood SDC isolations on Unit 2 since 1994. The inspectors concluded that engineering personnel had missed opportunities to investigate previous SDC isolations and this constituted a corrective action performance issue.” The inspectors did not identify a violation of NRC requirements. (See September 24, 2000, for related incident.) (IR 05000277 & 278/2000-012.)

October 4, 2000 - Unit-2 was taken critical.

October 4, 2000 - Unit-2 “operators halted the reactor startup following the discovery of a missed post-maintenance test on a control rod.” (IR 05000277 & 278/2000-012.)

October 17, 2000 - Unit-2 “operators reduced power to approximately 65% to repair a condenser tube leak. The unit was restored to 100% on October 18.” (IR 05000277 & 278/2000-012.)

October 22, 2000 - “...the failure of the Unit-2 ‘H’ torus/drywell vacuum breaker to fully close during surveillance testing rendered primary containment inoperable...Unit load was reduced to 16% due to an inoperable torus/drywell vacuum breaker...Because of the very low safety significance of this item and because the licensee has included it in their corrective action program (PEP I0011883), this procedure violation is being treated as a Non-Cited Violation.” This was the eighteenth Non-Cited Violation since June 1998 (IR 05000277 & 278/2000-012.)

October 23, 2000 - Unit-2 was shut down to repair the torus/drywell

vacuum breaker. The reactor was taken critical on October 24 and unit load was 100% on October 26.” (IR 05000277 & 278/2000-012.)

November 13, 2000 - “Operators reduced load to 79% [at Unit-2] to repair the 2C circulating water pump traveling screen. The unit was restored to 10% power on the same day.” (IR 05000277 & 278/2000-012.)

December 17, 2000 - An LER was issued “when a lightning strike caused the failure of a communications circuit board to a main off gas stack radiation monitor which resulted in a spurious invalid signal causing the isolation.” Unit 3 was at approximately 18% power when the lightning strike caused the isolation. (IR 05000277&278/2001-002).

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

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

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

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

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

June 30, 2001 - At Unit 2, “...operators commenced an unplanned

power reduction to approximately 63 percent to allow repair of an electrohydraulic control system leak at a servo on the No. 2 main turbine control valve. Later that same day, operators returned the unit to 100 percent power.” (IR 50-277/01-05, 50-278/01-05 & 07201027/01-05).

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

“If approved, Unit 2’s license would be extended from 2013 to 2033 and Unit 3’s from 2014 to 2034...” “The Nuclear Regulatory Commission is expected to take two years to thoroughly review the license renewal application before determining whether to grant the license extensions...”

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

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

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

1. From 1992 to December 19, 2000, approximately 47% of the PA system’s speakers were either inaudible or degraded to the point that personnel were not able to clearly hear instructions.
2. From January 19, 2001 to February 13, 2001, and again from March 20, 2001 to April 17, 2001, the plant PA system was operated only on the backup power breaker, which would have tripped after about 49 seconds of evacuation alarm actuation on the first sequence. (The primary breaker had tripped following the monthly test the beginning of each period.)
3. On February 13 and April 17, 2001, the plant PA/EA system would not properly function in that both the primary and the backup breakers were tripped for periods of 4.5 hours and 1.5 hours resulting in no system capability to provide instruction or sound the evacuation alarm. (Hubert J. Miller, NRC. Regional Administrator.) (See August, 15, 2001, for a related development.)

August 20, 2001 - "...the inspectors observed a health physics technician that was inattentive to his duties when he was assigned to restrict access to a posted high radiation area on the Unit 3 turbine floor...that applies to high radiation areas with dose rates in excess of 100 millirem per hour but less than 1000 millirem per hour at 30 centimeters from the source..." (IR 50-277/01-09, 50-278/01-09). This was the nineteenth Non-Cited Violation since June 1998.

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

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

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

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

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

September 28, 2001 - With third quarter profit projections down from \$1.35 to \$1.80 a share, Exelon announced the elimination of 450 jobs. (See June 13, 2001, for earlier job losses.) Exelon's stock dropped to \$44.50 on September 27, 2001. (See May 20, 2001, for Corbin A. McNeill's pay raise, and October 24, December 21, 2001, for related downgrades.)

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

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

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

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

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

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

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

October 8, 2001- Unit 3 was taken critical and "operated at approximately 100% power for the remainder of the inspection period except for scheduled power changes to support rod pattern adjustments." (IR 50-277/01-09, 50-278/01-09). - October 12, 2001- "....during the Unit 3 startup from a refueling outage, when the jet pumps had been cleaned, core flow exceeded 100% (at 106.3%) for a period of ninety minutes before operations personnel initiated actions to reduce core flow to within 100%." (IR 50-277/01-07, 50-278/01-07.)

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

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

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

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

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

October 19, 2001 - PSE&G acquired Atlantic City and Electric Company's stake in Peach Bottom. (See December 1, 1999, for a related acquisition by C o n n e c t i v) .

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

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$55,000 is considered for Severity Level III violation or problem. Because the Severity Level problem was deliberate, the NRC considered whether credit was warranted for Identification and Corrective Action in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. In this case, the NRC decided that credit for Identification is warranted because you identified the misconduct and informed the NRC." (Hubert Miller, NRC, Regional Administrator, October 23, 2001). This was the twenty-third Non-Cited Violation since June 1998.

Exelon's total cost avoidance, i.e., "credit" for 23 Non-Cited Violations = \$1, 155,000.

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

October 24, 2001 - Exelon Corporation's stock was downgraded from

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

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

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

Exelon's total cost avoidance, i.e., “credit” for 24 Non-Cited Violations = \$1,205,000.

November 2, 2001 - Governor Mark Schweiker reversed an earlier decision, and ordered the National Guard to Pennsylvania’s nuclear power plants. The Commonwealth joins over a dozen states with National Guard and/or Coast Guard detachments depolyed to protect nuclear facilities against terrorist attacks. (See October 6 & 17, 2001, for related incidents). - November 7, 2001 - Exelon met with the NRC to discuss the consolidation of Emergency Plans for TMI, Peach Bottom and Limerick. Exelon requested the plans be approved and implemented by January 2, 2002. The following personnel (17), including a “Security Coordinator” would be affected:

* LGS and PB Emergency Plan Positions Affected

- 1 Communicator
- 2 Dedicated Maintenance Technicians
- 1 Dose Assessor
- 2 Dedicated Off-Site Survey member

* TMI Emergency Plan Positions Affected

- 4 Technicians
- 1 On-Site OSC Coordinator
- 1 Dose Assessor
- 1 Off-Site Field Team Member
- 1 Communicator
- 1 Security Coordinator
- 2 Auxiliary Operators.

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

November 8, 2001 - At Unit 3, “...operators commenced a scheduled power reduction to approximately 19% because a primary containment isolation valve in the residual heat removal system in the drywell failed to close

when it was tested.”(IR 50-277/01-10, 50-278/01-10.)-November 28, 2001 -Exelon Power Team stated that the collapse of Enron will cost the Company “less than \$10 million. The current direct exposure (i.e., for current energy sales from Exelon to Enron) is less than \$20 million. (Exelon Corporation, Press Release, November 28, 2001.)(See October 8, 1997, for a related development.) Three days later, on December 1, 2001, PPL stated that the collapse of Enron may cost the Company \$40 million for energy already purchased. Enron also owns 45% of power plant in New England operated by PPL. (Philadelphia Inquirer, Business, December 1, 2001.)

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

December 5, 2001 - Business Day of Johannesburg South Africa reported Exelon was negotiating to buy 40 Pebble Bed Modular Reactors from Eskom. The order, estimated to be as much as \$6 billion, assumes delivery of the reactors to the United States by 2007. (See December 10, 2001, for related development.) Refer to April 17, 2002, for information relating to Exelon’s decision to pull-out of the project.

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

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

January 9, 2002 - A well-armed, disgruntled former employee at the San Onofre nuclear power plant in San Clemente was arrested for making threats against the plant.- January 11, 2002 - Siren testing at TMI encountered numerous problems:
all sirens failed in York County and one siren failed in Lancaster County.
AmerGen attributed to computer malfunctions. (August, 15, 2001, and October 5-9, 2001.)

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January 29, 2002 - Exelon announced it would cut 3,400 or 15% of its work force by the end of 2002. (See May 20, 2001, for Corbin A. McNeill's pay raise, June 13 and September 28, October 24 & December 21, 2001, for information on 900 job cuts. Also, reference February 26, 2002, for information on McNeill's "retirement package.")

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.)

February 14, 2002 - Exelon prepared an "inadequate critique" of their "emergency preparedness exercise." (See July 1, 2002.)

February 26, 2002 - Corbin McNeill Jr. announced his retirement, and he is expected to receive \$7 million when leaves the Company in April, 2002. He will also receive a bonus payment. McNeill made \$2.5 million in 2001.* "His severance equals triple the sum of his annual base salary plus the average of his bonus over the last two years. "McNeill is the company's largest individual shareholder. His 1.53 million shares are worth \$79.1 million based on yesterday's closing price of \$51.70." (Philadelphia Inquirer, C-1, March 14, 2002.)* Corbin A. McNeill's base salary, after the merger increased, from \$659,857 to \$855,830, and his bonus was increased from \$1 million to \$1,081,572. In addition, McNeill's restricted stock increased from \$942,188 to \$2.8 million. [May 20, 2001.] (See June 13 and September 28, October 24 & December 21, 2001, for information on 900 job cuts, and refer to January 29, 2002, for further job cuts. ")

March 28, 2002 - The NRC admitted that Peach Bottom and the 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 2001 & 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 January, 2001, October 6, 2001 & October 17, January, 9 and 30, 2002, and March 21 and May 15, 2002, for related incidents.)

April 17, 2002 - Exelon Corp., the country's largest nuclear plant operator, said yesterday that it would end its bid to develop the next generation of nuclear reactors.

The Chicago-based parent of Peco Energy Co. said it would terminate its nearly two-year relationship with Eskom, South Africa's state-owned utility, in building a prototype gas-cooled reactor. Exelon is getting out of the business of designing nuclear plants and will concentrate instead on operating them.

The company spent \$20 million on the project, of which it owned 12.5 percent. Exelon said it already had paid for its share as a research-and-development expense. It has not decided what to do with the 12 employees it had working on the project, a spokeswoman said. (Benjamin Y. Lowe, Philadelphia Inquirer, April 17, 2002.) (See December 5 & 10, 2001, for background information.)

April 22, 2002 - Exelon's 1st-Quarter Net Income Fell 98%

... as mild winter weather and maintenance costs hurt results.

"The country's largest operator of nuclear power plants reported late Monday net income of \$8 million, or two cents a share, compared with net income of \$399 million, or \$1.23 a share, a year earlier.

"The latest results included a charge of \$230 million, or 71 cents a share, from the effect of adopting SFAS 142 for goodwill amortization, while year-earlier results included a tax benefit for the implementation of SFAS 143 for derivatives. Excluding these items, the company said it had operating earnings of 77 cents a share, compared with operating earnings of \$387 million, or \$1.19 a share." (Mon Apr 22, 10:53 PM ET, CHICAGO -- Exelon Corp.)

(See June 13 and September 28, October 24 & December 21, 2001; and, January 29 & February 26, 2002. For information related economic developments.)

May 11, 2002- "Exelon Corp. is the subject of a shareholder lawsuit alleging the electric and gas utility made false and misleading statements that artificially inflated its share price. The law firm of Charles J. Piven said it filed a lawsuit on behalf of buyers of Exelon shares between April 24, 2001, and September 27." (Philadelphia Inquirer, D-3, May 11, 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.)

May 28, 2002 - “Exelon Corp. and three other utilities [Main Yankee Atomic Power Co., Omaha Public Power District & Sacramento Municipal Utility District] lost a \$2.2 billion legal challenge to the federal government’s nuclearwaste cleanup plan...In 1992, Congress ordered utility companies that use government uranium-enrichment services to pay one-third of the cleanup bill. The U.S. Supreme Court said yesterday that it would not hear an appeals from the companies that argue that the assessments are unconstitutional.” (“Associated Press”, May 29, 2002.)

June 2, 2002 -An alert began at around 12:30 am, ending at 3:01 am, relating to the activation of the fire suppression system due to EDG failure which released carbon dioxide into a room where two employees were working. No injuries were reported and both Peach Bottom 2 & 3 remained at 100% power. (Exelon Nuclear, News Release, June 2, 2002, 4:10 am.) (See November 26, 2002 for follow-up, and July 11, 2003 for absolution.)

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

June 25, 2002 - “...station emergency preparedness personnel discovered that the emergency planning siren base station at the site, was unable to communicate with the off site sirens, due to external radio frequency noise in the area.” (IR-50-277/02-05; 50-278/02-05)

July 1, 2002 - The NRC found that on February 12, 2002, Exelon “did not identify that key information needed by the emergency director (ED) to classify the simulated event as a General Emergency was not provided to the ED by members of the Emergency Response Organization (ERO). The finding was preliminary classified as White because the critique failed to identify a problem associated with the implementation of a risk significant planning standard.” ...Continued on the following page...Exelon disputed the findings on September 4, 2002.

The NRC reasserted that “the critique problems were more than minor but the Issuance of the White finding is not appropriate because the inadequate critique did not result in a failure to identify a risk significant planning standard (RSPS) problem.”

The incident is classified a Non-Cited Violation.
(Final Significance Determination for Green and White Findings and a Notice of Violation at Peach Bottom, IR-50-277/02-07; 50-278/02-07).

This was the twenty-fifth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., “credit” for 25 Non-Cited Violations = \$1,255,000.

July 21, 2002- At Unit-2, “the fifth stage feed water heaters were removed from service for end-of-cycle coast down.” (IR-50-277/02-05; 50-278/02-05). (See August 4, 2002 for related event.)

July 23, 2002- “Exelon did not evaluate in a prompt manner whether it was appropriate to disable the electrical trips of the EDGs from the cardox injection fire protections system after NRC inspectors identified that the trips were still active with the EDG cardox system isolated” (IR-50-277/03-02; 50-278/03-02) (Also refer to IR-50-277/02-04; 50-278/02-04). (See April 23, 2004 for NCV).

August 4, 2002- At Unit-2, “the fourth stage feed water heaters were removed from service.” (IR-50-277/02-05; 50-278/02-05). (See July 21, 2002 for related event.)

August 15, 2002 - Despite a favorable EIS of Exelon’s request for a license extension at Peach Bottom-2 & -3, the NRC listed three safety issues that need to be addressed prior to approval: replacement of electric fuse clips; removal of the anti-aging plan; and, replacement of faulty cables.

August 30, 2002- At Unit-3, “power was reduced to approximately 90% prior to shut down the 3 ‘A’ recirculating water pump because of high differential pressures on the circulating water intake screens. The high differential pressures were caused by a sudden surge in the amount of fish (Gizzard Shad) that entered the intake canal and clogged the screens. Unit 3 power was returned to 100 percent following cleaning of the circulating water screens and restating of the 3‘A’ circulating water pump.” (IR-50-277/02-05; 50-278/02-05).

August 31, 2002 - New security budget increased to \$2.2 million annually or \$550,300 less than John W. Rowe’s base salary.- 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 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.)
- “...Unit 2 was manually scrammed, in preparation for the 2R14 refueling outage” (IR-50-277/02-05; 50-278/02-05).

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.)

September 21, 2002 - A Non Cited Violation was issued for incident "when a chain broke" on a "rigging hoist and the motor, weighing approximately 48,000 pounds, fell approximately ten inches into the pump/motor stand."

This was the twenty-sixth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 26 Non-Cited Violations = \$1,355,000.

November 26, 2002 - Initially classified as a White, the incident was classified a Non-Cited Violation. (See June 2, 2002, for precursor event.) (Final Significance Determination for Green and White Findings and a Notice of Violation at Peach Bottom, IR-50-277/02-07; 50-278/02-07).

This was the twenty-seventh Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 27 Non-Cited Violations = \$1,355,000.

December 10, 2002 - A security challenge occurred at an Exelon nuclear power plant outside of Chicago.

"BRAIDWOOD -- A crazed Chicagoan, swearing to be an extraterrestrial alien, crashed his car through the gates of the Braidwood nuclear facility late Monday before speeding away only to be arrested for reckless driving in Wilmington minutes later.

...Continued on the following page... No injuries resulted. Metta said the intruder is alleged to have

penetrated the parking area by crashing through closed gates, flashing past a plant checkpoint and then doing "donuts" in the parking lot. ("The Daily Journal", Kankakee IL.)" (See January 9 and December 20, 2002, for related incidents.)

December 12, 2002 - TMI sirens malfunctioned in Cumberland and York counties. In Dauphin County, 28 sirens malfunctioned due to the "inadvertent" discharge of the "space bar" by a computer operator. (Refer to June 22, August 15 and October 5-9, 2001 and January 11, March 3 2002, for related problems.)

December 20, 2002 - Another security challenge occurred at an Exelon nuclear power plant outside of Chicago:

"BRAIDWOOD -- She was the second driver to breeze past the guard station at Braidwood's nuclear facility in the span of a week.

"But its unclear if the trespasses arrest of Wilmington's Christina Staley, Tuesday, will result in changes to the nuclear generating station's security apparatus.

"Neal Miller, station director, noted that Ms. Staley, 31, had apparently become disoriented and was looking for some place to turn around when she

drove past the security at 9 a.m.”
 (“The Daily Journal”, Kankakee IL.)”

(See January 9 and December 10, 2002, for related incidents.)

December 13, 2002 - A security challenge occurred at a nuclear facility north of Peach Bottom, 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.

December 17, 2002 - "...Unit 2 power was reduced to approximately 16 percent to facilitate leak repairs on the Caldon LEFM flow measurement system. After repairs, Unit 2 returned to 100 percent power in the afternoon of December 21" (IR 50-277/02-06; 50-278/02-06). (See April 30 - May 11, 2003, for a similar problem).

December 21, 2002 - An LER was recorded after "Unit 2 automatically shutdown from 100% power when the main steam isolation valves closed due to a Group I Primary Containment Isolation System (PCIC) actuation" (IR 50-277-03-02; IR-50-278/03-02). "For example, on Dec. 21, 2002, a Peach Bottom Atomic Power Station Unit 2 electro-hydraulic control system circuit card failure triggered a scram, according to the NRC's report. That system controls the wide-range speed control of the turbine, Sheehan said. "In other words," Sheehan said, "it serves as a sort of high-tech throttle for the plant's turbine, thereby controlling the plant's power output." "On Dec. 22, 2004, the NRC report said, another part of that same system malfunctioned, causing a loss of reactor pressure and forcing a scram." ("York Sunday News", March 13, 2005)

January 28, 2003 - An NCV was issued relating to Exelon's failure to correct and maintain "preventative maintenance activities and procedures on critical, safety related ventilation dampers since 1988...A contributing cause to the length of time that Exelon did not identify this issue was related to the Problem Identification and Resolution crosscutting area. Peach Bottom plant personnel did not identify the lack of preventative maintenance for safetyrelated dampers following the identification of excessive stroke times...in June 2000 or...failure to stroke on June 16, 2002" (IR 50-277-02-06; IR-50-278/02-06).

This was the twenty-eighth Non-Cited Violation since June 1998.
Exelon's total cost avoidance, i.e., "credit" for 28 Non-Cited Violations = \$1,405,000.

February 11, 2003 - A Severity Level IV violation was issued by the NRC. Exelon made changes to their emergency plans without prior NRC approval.

"The finding was determined to be more than minor as its significance was

related to the impact it would have on the mobilization of the emergency response organization and preclude offsite agencies from being aware of adverse conditions on site” (NCV 50-277; IR-50-278/03-006-01); This Violation was classified a Non-Cited Violation. This was the twenty-ninth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., “credit” for 29 Non-Cited Violations = \$1,455,000.

February 17, 2003 - PEACH BOTTOM-2 WAS REDUCED TO 45% POWER AFTER A RECIRCULATION PUMP tripped. Exelon spokesman Dave Simon said the trip occurred Feb. 17 at 6:48 a.m. The root cause of the trip has not yet been determined, he added. Simon declined to say how long the unit is expected to be operating at the reduced power level. Peach Bottom-2 was at full power prior to incident (Reuters.) The plant ramped up to full power by February 20, 2003. Reuters: Exelon's Pa. Peach Bottom 2 nuke drops to 41 pct Tuesday February 18, 8:25 am ET NEW YORK, Feb. 18 (Reuters) - Exelon Nuclear's 1,110 megawatt Peach Bottom 2 nuclear unit in Pennsylvania was at 41 percent power early Tuesday, down from full power on Friday, the U.S. Nuclear Regulatory Commission said in its power reactor status report. It was not immediately known why the unit, located in Delta, Pennsylvania, had been reduced. Meanwhile, the adjacent 1,110 MW Unit 3 continued to operate at full power on Monday. The NRC did not issue a reactor status report on Monday due to the U.S. Presidents Day holiday. Exelon Nuclear is a unit of Exelon Corp. of Chicago.

April 12-15, 2003 - At Unit-2, “an automatic reactor shutdown occurred due to high reactor pressure after the ‘D’ outboard main steam isolation valve (MSIV) collapsed. The MSIV closes as a result of a failed instrument line valve. Unit 2 returned to 100% power on April 15, 2003”. On April 12, 2003, “Unit 2 unexpectedly shut down when a single main steam isolation valve failed to close, based on a broken air-supply line. Exelon concluded that the valve’s air tubing was vulnerable to a fatigue failure.” “While the plant did inspect more than 200 pneumatic lines linked to air-operated valves on both Unit 2 and Unit 3, the review did not take into account similar equipment such as instrument lines, according to the report” (“York Sunday News”, March 13, 2005.)- April 19, 2003 - A Green Non-Cited Violation was issued “when approximately 25 minutes into a planned load endurance test run for the E2 EDG, a small fire occurred on the EDG manifold” (IR 50-277-200-3003; IR-50-278/200-3003). This was the thirtieth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., “credit” for 30 Non-Cited Violations = \$1,505,000.

April 23, 2003 - A Non-Cited Violation was issued for problems associated with the EDG cardox system on July 23, 2002.

This was the thirty-first Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., “credit” for 31 Non-Cited Violations = \$1,555,000.

April 23, 2003 - A Non-Cited Violation was issued for problems associated with emergency lighting units from November 6, 2002 through March 30,

2003. Eight-hour support batteries for three areas were not provided, i.e. Unit 2 RHR room, Unit 3 RHR room and Unit 3 RB "south isolation valve room." (IR 50-277-03-02; IR-50-278/03-02).

This was the thirty-second Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 32 Non-Cited Violations = \$1,610,000.

April 30 - May 11, 2003 - Unit-2 power "was reduced to approximately 30 percent to facilitate repairs to the Caldon leading edge flow meter (LEFM) system and for power suppression testing, to identify a leaking fuel assembly. During power ascension to approximately 85 percent, on May 6, following repairs to the Caldon LEFM system and after the leaking fuel assembly was identified and the adjacent control rod was inserted and de-energized, the #3 main turbine control valve started oscillating. Unit power was reduced to approximately 40 percent to facilitate repairs to the main turbine control valve. On May 11, 2003, Unit 2 returned to 100 percent power after the #3 main turbine control valve was repaired" (IR 50-277-200-3003; IR-50-278/200-3003). (See December 17, 2002, for a similar problem).

May 8, 2003 --The NRC RENEWED THE OPERATING LICENSES FOR PEACH BOTTOM-2 AND -3 FOR AN additional 20 years, the agency said today. The licenses will now expire on August 8, 2033 for unit 2 and July 2, 2034 for unit 3. Exelon had submitted the license renewal application on July 2, 2001 (Platts, Nuclear News.)

May 8, 2003 --EXELON LOWERED POWER AT PEACH BOTTOM-2 TO FIX A TURBINE CONTROL VALVE. The problem was discovered at around 3 p.m. yesterday as the unit was powering back up following completion of power suppression testing, company spokesman Dave Simon said. The unit had been operating at around 61% since April 30 while the power suppression testing was being conducted. It reached as high as 86% before being lowered to 42% to repair the control valve. Simon declined to say how long the repairs would take or when the unit would be returned to full power (Platts, Nuclear News.)

May 13, 2003 - During a surveillance test, technician discovered a " wire for the station power supply" was broken. (IR 50-277-03-02; IR-50-278/03-02).

This was the thirty-third Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 33 Non-Cited Violations = \$1,665,000.

SCRAM: APPENDIX "R" ISSUE AT PEACH BOTTOM 3

- "On May 14, 2003, at approximately 0410, the shift supervisor determined that the Alternate Shutdown Panel on Unit 3 was not operable following discovery of a de-energized power supply. The panel provides the

capability to maintain a safe shutdown path for a fire in the cable spreading room, main control room or main control room fan room. Therefore, operators would have been prevented from implementing required actions for a fire in those areas. The apparent cause of the loss of power was a broken wire, which was discovered during routine testing of the panel.

"Power was restored to the Alternate Shutdown Panel at approximately 1030 on May 14, 2003 and further investigation is in progress to determine the cause of the broken wire and full extent and effect of the de-energization of the panel." (U.S. Nuclear Regulatory Commission Operations Center, Event Reports For 05/14/2003 - 05/15/2003.)

“Pa. Nuclear Operator Found Drunk on Job”

May 14, 2003 - An employee at two Pennsylvania nuclear power plants has been suspended for being intoxicated on the job, according to a Nuclear Regulatory Commission report. The employee tested positive as being under the influence of alcohol during a random May 14 drug test at the Limerick Generating Station, according to the report. The test was given at 9:45 a.m., when the employee had already been at work for several hours, the report stated.

...Continued on the following page...The employee had been licensed to operate reactors at the Limerick plant in Montgomery County and the Peach Bottom plant in York County before being suspended by Exelon Nuclear, officials said. The NRC considers nuclear workers with a blood-alcohol content of 0.04 or above to be intoxicated. The state of Pennsylvania considers drivers with a 0.10 reading to be intoxicated and unfit to drive. The NRC is considering whether to issue the company a violation for the incident or revoke the operator's license. (See November 14, 2003, for a related development.)

May 21, 2003 --EXELON'S FORMER CHIEF EXECUTIVE MADE THE TOP 10 LIST OF BEST-PAID U.S. energy executives for 2002, according to a compilation by the Platts Energy Business & Technology (EB&T) magazine. Corbin McNeill, Jr., the ex-chairman and co-CEO of Exelon Corp. had a compensation package of nearly \$29.8- million last year, making him the fourth highest paid CEO out of the 250 executives that were examined. McNeill's 2002 package included a severance payment and benefits from a pension benefit plan from PECO Energy. He retired from Exelon in April 2002. The highest-paid executive in 2002, at \$46.6-million, was Charles Watson, former CEO of Dynegy Inc., the EB&T listing shows. The survey, which will be published in the June issue of EB&T, considered the executives' salary, bonuses, restricted stock awards, underlying options, value of options exercised, long-term investment pool pay outs, and any other compensation. (See July 9, 2003, for staff cuts).

May 22, 2003 - The NRC identified a Green violation relating to Appendix R, i.e., fire protection. The NRC deemed the issue as being of “very low safety significance” (IR 50-277-03-009; IR-50-278/03-009).

This was the thirty-fourth Non-Cited Violation since June 1998.
Exelon's total cost avoidance, i.e., “credit” for 34 Non-Cited Violations =

\$1,720,000.

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. ...Continued on the following page...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).

May 28, 2003 -A License Event Report was generated after "licensed operators were notified that approximately 4 inches of water [170 gallons] was discovered at the bottom of the 'A' Standby Gas Treatment (SBGT) filter plenum during the performance of annual surveillance (IR 50-277/2003004; IR-50-278/2003004) .

June 13, 2003 - LOSS OF BOTH OFFSITE POWER SOURCES TO TECHNICAL SUPPORT CENTER: "During severe thunderstorms in the area power was lost to the onsite technical Support Center (TSC) for approximately 90 minutes. These storms caused both offsite power sources to the TSC to deenergize at 2021. Grid operators began restoration activities immediately and power was restored to the facility at approximately 2200. Investigation is in progress for the cause of the line tripping."

The licensee notified the NRC Resident Inspector.

June 17, 2003 - Pensions: Utility Obligations Add Up, By Ken Silverstein Director, Energy Industry Analysis Utilities may get socked again. Already, stock values and credit ratings have taken a hit because of the failure to mitigate risks to their unregulated operations. Now, their credit status may get cut even more, given the level of "unfunded" pension liabilities. If the money in the pension plan to pay retirement obligations falls short, then a "minimum pension liability" must be recorded on the financial statements. In lay terms, it means that if a company were to be liquidated today, then it would be compelled to pay up. The liability recorded could therefore impede the debt-to-capital ratio, which could harm credit quality and even trigger violations of covenants. And while regulated utilities have a chance to recover such costs from their customers, many are now in the midst of rate moratoriums and cannot seek recovery, says Steven Fleishman, analyst with Merrill Lynch in New York City. Others would prefer to avoid a rate case, given that regulators may revisit

their entire rate structure and reduce their allowable returns, he adds.

...Continued on the following page...Those with the largest underfunded pensions at year-end 2002, says Merrill Lynch, include Exelon (\$2.4 billion), FirstEnergy Corp. (\$977 million), Public Service Enterprise Group (\$837 million) and American Electric Power (\$788 million.) Companies with the largest underfunded pensions as a percentage of equity market value, include CMS Energy (60 percent), Sierra Pacific Resources (30 percent), AES Corp. (29 percent) and CenterPoint Energy (17 percent). FirstEnergy, for instance, has said that its pension liabilities had forced it to cut its 2003 earnings picture. Profits, it says, will grow by 4-5 percent-not the 7-8 percent that it had projected. DTE Energy, meanwhile, said that its pension expenses would be \$50-\$55 million higher in 2003 than in 2002. (See December 3, 2003, for related GAO Study).

July 9, 2003 --EXELON HAS RESTRUCTURED ITS NUCLEAR

OPERATIONS BY ELIMINATING regional operating groups in favor of a single organizational unit. The restructuring was made public today in an NRC Weekly Information Notice, but was announced internally to Exelon employees June 23. As part of the restructuring, Chris Crane was named chief operating officer of Exelon Nuclear, William Levis vice president of mid-Atlantic operations, and Chip Pardee senior vice president of nuclear services. Also, Robert Braun will replace the retiring Joel Dimmette as vice president of nuclear operations. The changes will become effective by Aug. 1, said Exelon spokeswoman Ann Mary Carley. She said that when Exelon Nuclear was formed in 2002, it set up the regional operating groups to accommodate the nuclear organizations of the former PECO Energy and Commonwealth Edison (ComEd), as well as AmerGen, a joint venture between Exelon and British Energy. Exelon was created by the merger of PECO and ComEd parent Unicom Corp. Over time, the two regional groups' policies and procedures have aligned and all 10 Exelon plants are now using the same policies and procedures, Carley said (Also refer to May 21, 2003 --EXELON'S FORMER CHIEF EXECUTIVE MADE THE TOP 10 LIST OF BEST-PAID

U.S. energy executives for 2002, according to a compilation by the Platts Energy Business & Technology (EB&T) magazine.)

July 11, 2003 - The NRC conducted a supplemental inspection to "assess the licensee's evaluation and corrective actions regarding the...June 2, 2002, carbon discharger event". The NRC diluted its previous "White" finding and noted the event "will only be considered in assessing plant performance through the period concluding at the end of the second calendar quarter of 2003..." [In other words, 20 days from the NRC's promulgation the event becomes a "nonevent".] (See November 26, 2002 additional data.) (IR Supplemental Report 50-277-03-11; 50-278/03-011).

This was the thirty-fifth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 35 Non-Cited Violations = \$1,775,000.

July 16, 2003 - The NRC's Office of Investigation's (OI) concluded that

Exelon was in violation of a License Amendment Restriction that requires notification when a reactor operator (RO) medical status changes. Such a change occurred to an RO on September 13, 2001, and the forenamed operator returned to work between April and December 2002 without notifying the NRC about the reactor operator Fitness for Duty in the control room.

The NRC's investigation began on January 3, 2003. "After careful consideration of the information developed during the investigation, the NRC has concluded that a violation of NRC requirements occurred" (PBAPS, NRC O&I No. 1-2003-002).

This was the thirty-sixth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 36 Non-Cited Violations = \$1,830,000.

July 22-29, 2003 - Unit 2 experienced an automatic reactor shutdown "due to generator lockout from foreign material causing a short in the bus duct. Unit 2 returned to 100% power on July 29, 2003." (IR 50-277/2003004; IR-50-278/2003004).

On July 22, 2003, "Unit 2 shut down when a piece of broken fan belt entered the reactor's isophase bus duct cooling system. Exelon found that a design weakness existed and decided to install debris guards that would prevent belt material from entering the fan suction."

"Despite Exelon's intention to install fan belt guards within 30 days, the corrective action took two months "with no rationale provided for the delay," according to the inspection report" ("York Sunday News", March 13, 2005).

July 23, 2003 - PEACH BOTTOM-2 REMAINED DOWN TODAY AFTER TRIPPING AUTOMATICALLY yesterday due to an actuation of the main generator protective relay, Exelon spokeswoman Dana Fallano said. She said Exelon is investigating the root cause of the actuation (Source: Platts, Nuclear News).

July 24, 2003 - The NRC identified a Green violation relating to the inoperability of 'A' train was inoperable between November 200s through May 28, 2003 (IR 50-277/2003003 IR-50-278/2003003). This was the thirty-seventh Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 37 Non-Cited Violations = \$1,885,000.

July 29, 2003 - 11:55:05 AM EST Peach Bottom plant back to full power; Shutdown of nuclear generating unit 2 last week cited as non emergency By LANCASTER INTELLIGENCER JOURNAL

The Peach Bottom Atomic Power Station returned to full power today after an outage of one of its two power generation reactors last week.

Peach Bottom's Unit 2 reactor returned to service at about 10:15 a.m.

Saturday. As of yesterday, the unit was operating at approximately 90 percent of capacity, said Dana Fallano, spokeswoman for Exelon Nuclear, which owns the plant. Unit 2 shut down one week ago after generator problems forced an

automatic shutdown.

Neil Sheehan, spokesman for the Nuclear Regulatory Commission, said all safety systems functioned properly during the shutdown and any radioactive steam that could have been released was contained and isolated in the reactor vessel. "It seems like a pretty straightforward event," he said.

Exelon reported the shutdown to the NRC at 5:30 p.m. July 22. The commission classified the shutdown as a "non emergency event."

According to Exelon's event report, Unit 2's generator malfunctioned at 1:45 p.m. that afternoon while operating at full power. With no way to output electricity, the plant's main turbine tripped off, which then triggered an automatic reactor shutdown. Exelon employees had no firm answers last week on what caused the generator to malfunction, Sheehan said. Yesterday, Fallano said the generator's protective electronic relay system activated after sensing some type of movement. She said the company is still investigating what type of movement that was. NRC reaction: Sheehan said it's unlikely the NRC will send a team of inspectors to investigate because the problem occurred in the generator, not the reactor vessel, and the shutdown appears to have gone smoothly.

The utility may be concerned, Sheehan said, about losing a reactor during heavy summer demand for electricity. Fallano declined to discuss how much revenue was lost, calling it private, competitive information. When both Peach Bottom reactors are running, the power station supplies enough electricity for 2 million homes.

...Continued on the following page...The event marked the second shutdown at Peach Bottom's Unit 2 in seven months. On average, the nation's 103 commercial reactors automatically shut

down only once every other year, according to the NRC.

On Dec. 21, computer failure closed valves that direct steam from Peach Bottom's Unit 2 to the main turbine that generates electricity. The reactor automatically shut down to avoid a steam buildup.

The NRC sent a team of inspectors to the plant and cited Exelon for two safety violations involving human errors and equipment problems that occurred during that shutdown.

Staff writer Charlie Young contributed to this report.

July 30, 2003 - EXELON REPORTED SECOND QUARTER 2003

EARNINGS OF \$402-MILLION, an 8.9% increase over the \$369-million earned in the same quarter one year ago. The company said an increase in sales, lower interest expense, and lower depreciation and amortization offset weather-related decreases in electricity deliveries and lower energy margins at Energy Delivery. Exelon reported its nuclear fleet, excluding the plants in the AmerGen joint venture (Clinton, Oyster Creek and Three Mile Island-1) generated 29,619 gigawatt-hours in the second quarter, compared to 28,776 GWH in the second quarter of 2002. Capacity factor of the Exelon fleet, including the AmerGen plants, improved to 94% during the second quarter this year from 92.1% in

the second quarter last year, Exelon reported. AmerGen is a joint venture between Exelon and British Energy (Source: Platts, Nuclear News) .

August 8, 2003 - The NRC identified a Green violation “concerning the failure to properly correct an equipment deficiency that subsequently resulted in a challenge to the plant and operators. Specifically, a solenoid associated with a reactor feed pump turbine (RFPT) overspeed trip device exhibited degradation during RFPT overspeed testing on two occasions [September 27 and November 27, 2001], however, your staff failed to determine the root cause for this problem until a third problem occurred that resulted in a RFPT trip and plant transient” (IR 50-2772003012 IR-50-278/2003012).

This was the thirty-eighth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., “credit” for 38 Non-Cited Violations = \$1 ,940,000.

August 14, 2003 - “...the fifth stage feed water heaters were removed from service for end of cycle coast down.” (IR 50-277-200-3004; IR-50-278/200-3 0 0 4) . Exelon Corp debt ratings unchanged by Sithe deal-S&P

(NEW YORK, Aug. 18 - Standard & Poor's Ratings Services said today that its ratings on Exelon Corp. (nyse: EXC - news - people) (A-/Stable/A-2) and its subsidiaries will not be affected by the company's announcement that it will sell 50% of its equity interest in Sithe Energies Inc. Further, subsequent full sale of Sithe, which remains a distinct possibility given the put and call options attached to Sithe ownership, would not affect Exelon's ratings...Exelon's announced equity interest sale demonstrates the company's intention to sell off the disappointing merchant assets it acquired several years ago, a positive for credit quality. However, the fact that Exelon recorded a \$200 million writedown related to its original 49.9% investment in Sithe demonstrates the inherent risk associated with the remaining high-risk portion of this business. Copyright 2003, Reuters News Service. (See August 29, 2003 for a related development).

August 24, 2003 - “The fourth stage feed water heaters were removed from service [for end of cycle coast down]”. (IR 50-277-200-3004; IR-50-2 7 8 / 2 0 0 - 3 0 0 4)

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 three-quarters 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.

...Continued on the following page...

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)

Raytheon Also Sues BNP Paribas Over Exelon Projects

August 29, 2003 - LEXINGTON, Mass. -(Dow Jones)- Raytheon Co.

(NYSE:RTN - News) sued an indirect subsidiary of Exelon Corp. (NYSE:EXC - News), as well as BNP Paribas SA, about Exelon's decision to turn over the subsidiary to its bank lenders.

Raytheon said it is "seeking to protect Raytheon's rights" in connection with the Exelon Mystic and Exelon Fore River power plant projects in Massachusetts. In a press release, the aerospace and defense company said the suit was filed in Massachusetts' Suffolk County Superior Court.

On July 29, Exelon said it planned to turn Exelon Boston Generating LLC, its indirect subsidiary, over to its bank lenders. It decided to do so after continued evaluation of Boston Generating's power-plant projects and discussions with lenders. Raytheon turned over the Mystic and Fore River projects to owner Exelon - one in April, one in July. The projects weighed down Raytheon's balance sheet for several years.

Raytheon was forced back into the construction business to complete the projects in Weymouth and Everett, Mass., after Washington Group International Inc. (NasdaqNM:WGI I - News) filed for bankruptcy. Representatives from Exelon and BNP Paribas were not immediately available to respond to the lawsuit.

Raytheon named the Mystic and Fore River units as defendants as well.

...Continued on the following page...Raytheon said that since Exelon's announcement, Raytheon has continued to perform final close-out work on the projects. Raytheon said it seeks to "obtain adequate assurances of payment" and protect its rights under its support agreements. Raytheon, through a subsidiary, was the original contractor of the plants.

It sold that subsidiary to Washington Group in 2000, but got project responsibility back in a settlement from Washington Group after Washington

filed for bankruptcy in 2002. Exelon seeks to transfer ownership of Boston Generating without the subsidiary filing for bankruptcy. Exelon has about \$700 million invested in Boston Generating. Exelon has said it plans to spend nothing further on Boston Generating outside of limited administrative and operational services. Therefore, Raytheon is seeking a declaratory judgment and injunction from the court that will assure it is paid by either Exelon, its subsidiaries and subunits, or its lenders. Exelon has refused to refund about \$36 million in prepaid liquidated damages that Raytheon advanced, the court papers said. Raytheon also said that the defendants have no right to draw upon about \$73 million in letters of credit that the defense contractor posted for them. Raytheon said it posted the credit to ensure the performance of its contractual obligations. Throughout the court filing, Raytheon says that it spent, during the lifetimes of its guarantee agreements, more than \$1 billion for the benefit of Exelon, its subsidiaries and subunits, and the lenders. BNP Paribas' alleged role in the matter dates back to January 2001, when a former owner of the plants, Sithe Generating, secured financing from the French bank to pay for the construction of the Mystic and Fore River facilities. After Washington Group abandoned work on the facilities, BNP and other lenders insisted on credit facility changes. One of those changes was that BNP, court papers indicated, would provide Raytheon with prompt written notice of any continuing events of defaults under the credit agreement. Raytheon said that, from November 2002 -- when Exelon bought Sithe -- to the day Exelon announced it was handing the units over to its lenders, it never received any notices from BNP Paribas. Because of the lack of notice, Raytheon claims it has continued to spend money in good faith and has been damaged by BNP's alleged omissions.

-Thomas Derpinghaus; Dow Jones Newswires; 201-938-5400.

(See August 29, 2003 for a related development). The commission investigated a loss of power at

Peach Bottom's power station in May
By SEAN ADKINS Daily Record

September 4, 2003 - For about nine days in May, an undetected broken wire caused a loss of power to a redundant control station for Peach Bottom Atomic Power Station Unit 3.

A failure to observe work order test instructions after maintenance on the panel prevented plant technicians from immediately discovering the broken wire, according to a U.S. Nuclear Regulatory Commission report.

Damage to the power supply wire occurred during maintenance to the highpressure coolant injection alternative control station — a system used to shut down the plant if the operators are forced to leave the main control room because of a fire, said NRC spokeswoman Diane Screnci.

While the violation is under commission review, the incident did not pose a safety threat since the plant repaired the wire and restored power to the back-up station on May 14, Screnci said.

“There are other ways you could shut down the plant even if you don't have the station active,” she said.

Depending on the commission's findings, the infraction could mean

additional plant inspections.

In June, Peach Bottom Atomic Power Station was the subject of a supplemental NRC inspection for a violation committed the year before.

Last year, a light bulb dropped from the ceiling onto a circuit board and caused the plant's fire-suppression system to discharge carbon dioxide [Refer to July 11, 2003] into the E-3 emergency diesel generator room in the Diesel Generator Building.

The supplemental inspection found that the plant had taken the proper corrective actions and the power station could return to a routine inspection schedule.

While the plant showed that its fire-suppression system was in working order, a malfunction in one of its diesel generators garnered a non-cited commission violation of very low safety significance.

Continued on the following page... In June, NRC inspectors found that Exelon technicians had not adequately tightened the engine top cover flange joint bolts of an emergency diesel generator during a maintenance procedure.

As a result, lube oil leaked from the joint and caused a small fire on the exhaust manifold during a test.

During that same time period, Three Mile Island Unit 1 violated an NRC reporting requirement.

In June, NRC inspectors found that, on three instances, TMI officials found potentially disqualifying medical conditions among its licensed operators but had not reported them to the NRC within the required 30 days.

TMI requested its doctor to confirm with the patient's physicians, which extended past the 30-day NRC reporting period.

Two units at nuke plant shut down; grid disturbance cited

September 15, 2003 - An electrical disturbance on the power grid cut off incoming electricity at the Peach Bottom nuclear power plant and caused both reactors to shut down automatically early Monday, Exelon Nuclear officials said.

Plant officials declared an "unusual event" just after 2:30 a.m.

The plant's four emergency backup diesel generators provided emergency power for about an hour, said Exelon spokesman David Simon. One of the generators malfunctioned, and then another backup source of power was used to power vital equipment, such as lights and emergency feed water pumps, until power was restored later in the morning, Simon said.

... PJM Interconnection, the company that operates the power grid in the Mid-Atlantic, said it was investigating the grid disturbance. PJM spokesman Ray Dodter said the company couldn't yet say what caused the disruption.

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Unit-2 was operating at 100% power, and returned to full power on September 25, 2003.

Unit-3 was operating at 91% power, and remained shut for the 3R14 refueling outage.

September 15, 2003 --THE U.S. COAST GUARD PROPOSED ESTABLISHING A PERMANENT SECURITY ZONE on the waters adjacent to Peach Bottom. According to a notice of proposed rulemaking published in yesterday's Federal Register, the zone "would protect the safety and security of the plant from subversive activity, sabotage, or terrorist attacks initiated from surrounding waters. This action would close water areas around the plant." A temporary final rule issued June 4 established the security zone on the Susquehanna River by restricting any person or vessel from entering or navigating the security zone without Coast Guard permission. The Coast Guard said in the notice that it wants to make the security zone permanent. Comments on the proposed rule are due by Nov. 14. (Source: Platts, Nuclear News) .

October 24, 2003 - Exelon Corp. Posts Quarterly Net Loss of \$102 Million - Oct. 24--Commonwealth Edison parent Exelon Corp. reported solid operating profit in the third quarter, but special items -- including a mammoth \$573 million charge to write off a disastrous investment in East Coast electricitygenerating projects -- pushed the holding company's bottom-line results into the red. In the latest quarter, Exelon reported a net loss of \$102 million, or 31 cents a share. (Knight Ridder Tribune Business News.)

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) .

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 3, 2003 - S&P placed Exelon on credit watch after the Company announced it wanted to buy Illinois Power from Dynergy. or \$2.2 billion, if Illinois legislators grant it single-digit rate increases. The deal was canceled after Exelon determined it could not count on rate increases.

November 4, 2003 - NRC inspectors identified three, "Green" non-cited violations and Severity Level IV violation "associated with a lack of records to support changes made to the emergency plan" (IR 50-277-200-3004; IR-50-278/200-3004).

The Severity Level IV Violation, also Non-Cited, involved changes to Exelon's Standard Emergency Plan, including Limerick, Peach Bottom and Three Mile island. Exelon changed "emergency plan commitments without documentation" which subsequently impacted "the NRC's ability to perform its regulatory function..."

Continued on the following page...The three other "Non-Cited" violations include different aspect of plant operations and training:

Licensed Operator Requalification "Green. A non-cited violation...was identified regarding the licensee's method used to reactivate senior operator licensees to support refueling. The operators were reactivated without the required direct supervision being present during the shift under-instruction item. The Limited Senior Reactor Operator (LSRO) Requalification Program for Fuel Handlers is a dual site operator license program that applies to both Limerick and Peach Bottom sites."

Finding 1 -Unit 2 Reactor Core Isolation Coolant System During Unit 2 Scram "...Exelon did not adequately correct a significant condition adverse to quality identified during a December 21, 02 scram, associated with the inoperability of the Unit 2 reactor core isolation cooling (RCIC) pump in the automatic flow control mode"

Finding 2 -Unit 2 Main Steam Line High Temperature Switch "...during the period of July 2001 through July 2003, Exelon did not adequately correct a condition adverse to quality, specifically a high Unit 2 steam tunnel temperature condition that was not representative of a steam leak".

This was the thirty-ninth, fortieth, forty-first and forty-second Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 42

Non-Cited Violations = \$2, 160,000.

November 7, 2003 - "NRC: NRC Appoints New Senior Resident Inspector at the Peach Bottom...Craig Smith is the new senior resident inspector at the Peach Bottom Atomic Power Station in Delta, Pa. The two-unit site is operated by Exelon. Most recently, Mr. Smith was a resident inspector at the Three Mile Island nuclear plant in Middletown, Pa." ("NRC Press Release"). However, Eric Epstein, Chairman of TMI-Alert, noted: "Craig Smith was at TMI for five years and hid on the Island except for annual appearances." Mr. Epstein pointed to Mr. Smith's last appearance before the public at the NRC's Annual ROP Assessment meeting on Wednesday, April, 9, 2003. Continued on the following page...Mr. Smith stated that the number of employees at TMI was 529. When the

NRC was apprised that they were off by 114 employees, they reassured the community it didn't matter how many people worked at TMI based on the color code, PI sequence and late hour. Local residents persisted, and told the NRC that Performance Indicators for Non-Performance does make sense, and we're still old fashioned enough to prefer Zero Tolerance to color-coded lollipops.

- November 8, 2003 - U.S. Warns of Al Qaeda Cargo Plane Plot - WASHINGTON (AP) -- The latest warning from the Homeland Security Department that al-Qaida may be plotting an attack is renewing calls for stricter security on cargo planes.

The department advised law-enforcement officials Friday night of threats that terrorists may fly cargo planes from another country into such crucial U.S. targets as nuclear plants, bridges or dams, Homeland Security spokesman Brian Roehrkasse (By THE ASSOCIATED PRESS/Published: Filed at 4:29 p.m. ET).

November 13, 2003 - "Exelon Nuclear's Peach Bottom-2 was forced to shut down 196.3 hours due to off-site voltage fluctuations in the electrical grid" (Nucleonics Week, p. 17.)yees screened positive for the illegal drug ~the largest single six-month j

On drugs, and on the job, Between July 1999 and December 2002, 143 workers at local power plants tested positive for drugs or alcohol.

By SEAN ADKINS , Daily Record staff (November 14, 2003)

Late in the afternoon of Sept. 24, 1999, a Three Mile Island security officer checked a tip about a short-term contractor smoking marijuana on the job. Officer Darlene Ranck escorted George Lonnie McDaniel, 27, to TMI's security office to be questioned for violating the plant's Fitness-for-Duty Program.

Ranck and Officer Greg DeHoff asked McDaniel to empty his pockets.

The Jessup, Ga., resident pulled a small plastic bag of marijuana from his pocket, and plant security officers called the Pennsylvania State Police, according to an affidavit filed with District Justice David H. Judy in Dauphin County.

McDaniel's job at TMI did not grant him access to vital areas of the plant.

Currently, Dauphin County has a fugitive warrant out for McDaniel's arrest. He could not be reached for comment for this article.

Between July 1999 and December 2002, 143 workers and short-term contractors at Three Mile Island and Peach Bottom Atomic Power Station tested positive for drugs or alcohol, according to biannual Fitness-for-Duty reports. The York Daily Record obtained the reports from the U.S. Nuclear Regulatory Commission through a Freedom of Information Act request. Drugs listed in the reports include marijuana, cocaine, opiates, amphetamines and alcohol. All the workers tested were people who had or were applying for unescorted access to vital areas of the plants. Many were short-term workers, such as McDaniel. They travel the nation, from power plant to power plant, to work when reactors are shut down for refueling. Continued on the following page...State Rep. Bruce Smith, R-Dillsburg, said he was disturbed by the number of positive drug tests reported by TMI officials. "There is no excuse or any way to defend substance abuse at a nuclear power plant," he said. Smith said he plans to contact the NRC and acquire the plant's Fitness-for-Duty reports for his own records. A Daily Record investigation found: XB7; More people might have tested positive, but the NRC does not have a zero-tolerance policy when it comes to chemical testing. The commission uses cutoff limits to screen for narcotics and alcohol. For example, the NRC's limit for alcohol is a blood-alcohol content of 0.04 percent. That is equivalent to three 12-ounce beers in an hour for a 200-pound man. XB7; Short-term contractors made up the majority of the workers who tested positive at both Peach Bottom and TMI unit 1 in Londonderry Township, Dauphin County. Short-term contractors generally handle maintenance and repairs that cannot be completed when the plant is on-line. XB7; Workers inability to cope with stress following the terrorist attacks may have contributed to the largest single six-month jump in marijuana use among plant workers since July 1999. For both plants, 73 people tested positive for marijuana ~ the most of any intoxicant. Keeping fit for duty In 1989, the NRC created a policy that each plant should follow an individual fitness-for-duty program. Collecting such data helps ensure that workers complete their jobs free of any physical or mental impairment such as drugs, said Neil Sheehan, commission spokesman. Twice a year, each plant files a report with the commission that details how many workers tested positive for legal or illegal substances. Continued on the following page...The commission examines the data for trends in drug use among plant workers, Sheehan said. "It acts as a performance indicator of a plant," he said. If a plant reports two or more fitness-for-duty program failures, the NRC will increase its level of oversight. An example of a program failure could be a worker and plant physician working together to falsify screening results. Program failures could translate into increased inspections and possible fines, Sheehan said. In 2001, the NRC hosted a specific investigation into whether a former commission-licensed chief shift operator at the Nine Mile Point Nuclear Station in New York had deliberately provided false, inaccurate, or incomplete information on health history forms. The investigation uncovered that the operator deliberately failed to provide complete information on the forms in order to mislead an officer. The fitness-for-duty violation case did not result in a fine, but the NRC could have issued a base civil penalty of \$55,000.

Neither Peach Bottom nor TMI Unit 1 has been cited for a fitness-for-duty violation.

Test limits

Rather than have a zero-tolerance drug policy, the NRC relies on cutoff levels to test if a person has abused drugs or alcohol. For example, the NRC's limit on marijuana is 100 ng/ml ~ about the equivalent of smoking one joint in a week. At those levels, it is possible that a worker could endanger himself, fellow employees and the community, said Jim Beek, a public information officer for the Substance Abuse and Mental Health Services Administration.

Continued on the following page...A division of the U.S. Department of Health and Human Services, SAMHSA sets guidelines for workplace drug testing for the NRC. The level of impairment depends heavily on a person's sensitivity to a specific drug, Beek said. Since most 'street drug' like marijuana and cocaine are not regulated by the U.S. Food and Drug Administration, it can be difficult for experts to determine the strength of the drug, Beek said. "When someone takes a hit off of a joint, you don't know how or when it might affect them," he said. "They could end up losing an arm or blowing up Delta, Pa." From her living room, Marianne Adamski of Goldsboro has a view of TMI's water cooling towers billowing steam. She said the lack of a zero-tolerance drug policy for plant workers is , "cary." "They should regulate it much better than that," Adamski said. "They should be more responsible than that." The NRC's use of cutoff levels rather than zero tolerance is based on decades of research, Sheehan said. Studies indicate that drugs in quantities below the cutoff levels are not likely to affect job performance. For example, a plant employee who must report to work at 4 p.m. Monday and has cocktails Sunday night should not be affected by the alcohol once he reports to the plant, Sheehan said. "You might have a small amount of alcohol in your body, but based on evidence, it will not impair your ability to do the job effectively," Sheehan said.

One expert claims a zero-tolerance drug policy does not account for human digestion and passive exposure involving marijuana. The human body produces alcohol as a process of digestion, said Robert Stephenson, head of the SAMHSA Division of Workplace Programs. That amount of alcohol is below the level of impairment but above zero, Stephenson said.

Marijuana can stick to clothes and hair, he said.

Continued on the following page...

If a person walks through a room where people are smoking marijuana, it may mean that they were exposed to second-hand smoke rather than ingesting the drug. "Zero tolerance means that we won't tolerate one free bite of the apple," Stephenson said.

Another hurdle that laboratories must traverse in the quest for a true zero-tolerance drug test is technology.

Many drug cutoff levels exist essentially to test how far down the screening equipment can reach, said Dr. Carla Huitt. "Much of the equipment can't

accurately measure down to zero,” said Huitt, medical director of the Industrial Resource Center at Memorial Hospital. “Below the cutoff level, they are just making an assumption that the person is not impaired.”

Regardless of the equipment, doctors cannot determine how an illegal drug will affect one person compared to the next. Marijuana, the most common drug found in plant workers, can remain in the body for up to a month, Huitt said.

Fitness offenders

On a regional level, most nuclear plant workers who tested positive for drugs were short-term contractors who work the sites during refueling. Between July 1999 and December 2002, 91 short-term contractors at Peach Bottom tested positive for drugs. At TMI, 45 temporary employees tested positive. The remaining seven workers who tested positive for drugs at both power plants were licensed employees.

A licensed worker is someone who has been certified by the NRC in their job and works at the plant full time.

Continued on the following page...One reason for the unbalanced figures could be that Peach Bottom has two operating reactors that require double the manpower, compared to the needs of TMI's lone unit, Sheehan said. Typically, plants temporarily hire hundreds of short-term contractors for repairs and maintenance when reactors are shut down for refueling. For example, short-term contractors have been involved with the installation of a reactor vessel head at TMI since Oct. 18. The plant's unit 1 reactor is currently shut down. “There really is no need to keep a staff that size on permanently,” said David A. Lochbaum, of the Union of Concerned Scientists in Washington, D.C., a nonprofit environmental group. Power companies have the month-long outages every two years to conduct inspections, change out spent fuel rods, upgrade equipment and perform preventive maintenance that is difficult to complete while a plant is operational.

Since 1990, when the average refueling outage lasted 60 to 75 days, the industry has pushed to reduce the number of days the power plants are down, Lochbaum said. The more time a reactor is offline, the longer a plant goes without supplying power to the electrical grid ~ its main business. “They make their money when the plant is running,” Lochbaum said. “Plant operators began to hire additional workers to get the required repairs completed in half the time.” But more workers means more drug screenings and a greater potential for positive chemical tests, Lochbaum said.

Most of the workers who fail the plants' drug tests are new hires who are screened for the first time and have not yet been assigned to the protected area, he said.

Continued on the following page...For those workers who actively take drugs and make it to the protected area of the plant, specific safeguards exist to expose that person's habits to security.

Exelon Nuclear operates a computer program that randomly drug tests 50 percent of a plant's staff on an annual basis, said Hugh McNally, regional security manager for Exelon Generation. The process deters people from taking

drugs under the assumption that a random test could take place at any time, he said. For example, the computer could randomly select a worker who was tested for drugs on Monday to be screened again on Thursday of the same week. "I could be tested three times in a year," McNally said. "Personally, I've been tested twice in one week"

As part of the plant's training process, new workers are instructed to recognize the symptoms of narcotics use and must report any changes in behavior they notice in other employees. Failure to do so could result in a worker losing his job, McNally said. "If I smell alcohol on someone's breath," he said, "I need to report it to my supervisor."

At the drug test, a worker must list all the prescription medications he may be taking. The employee must fill a container with urine, McNally said. The worker is allowed to complete the four-minute test in a bathroom in private, but the employee is not permitted to run any water or flush the toilet. "We try to have a lot of controls in place so a person can't beat the system," he said. An onsite laboratory tests the samples. If a worker's urine screens positive for drugs, the plant sends the sample to an outside laboratory for complete verification. Exelon temporarily denies the employee access to the protected area of the plant. Once the outside laboratory has confirmed the test, the plant's medical review officer makes a final determination.

Continued on the following page... The commission requires a nuclear plant to restrict a worker's access to protected areas for at least 14 days. "For most people," Lochbaum said, "that means they lost their job. 'The plant may request a worker complete drug and alcohol counseling before the employee can return to the plant.

Plant officials make the final determination whether to reinstate the employee's access to the protected area or to fire the employee, McNally said. Access is automatically denied for three years if a person screens positive a second time, he said.

A failed drug test could hamper a person's chances for a new job, Lochbaum said. Power companies enter information relating to the failed test into a national database that is monitored by all power plants.

"It's a red flag that you lost unescorted access privileges to the plant," Lochbaum said. "If you violated their drug policy, you've kissed your job goodbye."

Spike in marijuana use

Between July and December 2001, 10 TMI workers tested positive for marijuana while 20 Peach Bottom employees since July 1999.

By contrast, no workers at Peach Bottom tested positive for marijuana during the previous six-month period. At TMI Unit 1, three people tested positive for the drug during that period.

Aside from fall refueling outages that require more workers, the jump in drug abuse may be attributed to stress. The Sept. 11, 2001, terrorist attacks happened during the six months when the spike occurred.

Continued on the following page...Generally, an unstable political and economic climate can elevate stress to the point where a person could turn to drugs as a coping mechanism, said Helen Gyimesi, a drug and alcohol prevention specialist for Memorial Hospital. "These are mood-altering drugs," she said. "Working in a place like that after 9/11 could be scary". (See May 14, 2003, for a related incident). The NRC will increase its inspections after four unplanned shutdowns of the nuclear plant's unit 2 reactor.

By SEAN ADKINS, Daily Record staff, Saturday,
November 15, 2003

For the next year, the U.S. Nuclear Regulatory Commission will increase the frequency of its inspections at Peach Bottom Atomic Power Station's unit 2. Since October 2002, unit 2 has experienced four unplanned reactor shutdowns, said Neil Sheehan, commission spokesman. An NRC rule permits a utility to have three unscheduled reactor shutdowns within 7,000 critical hours of operation or about one year, he said.

If a reactor has more than three unplanned shutdowns, the NRC bumps its level of oversight of the reactor.

Dave Simon, spokesman for Exelon Nuclear, said the issue of the shutdowns will be addressed at a public meeting slated for next week. Exelon Nuclear declared an unusual event Sept. 15 when electrical breakers on the PJM Interconnection power grid failed to isolate a lightning strike in Chester County. The strike generated a power surge on two electrical lines that feed into the plant, forcing the unit 2 and unit 3 reactors into automatic shutdown. Exelon co-owns and operates Peach Bottom Atomic Power Station and Three Mile Island unit 1 in Dauphin County.

Continued on the following page...On July 22, a fault in the main generator system caused an automatic shutdown of Peach Bottom's unit 2. The unit's computerized reactor protection system received an over-current signal from the generator, which caused a trip of the main turbine and shut down the unit.

On April 12, the power station's unit 2 reactor shut down after an air line failure. The malfunction resulted in the closure of a main steam line isolation valve, which tripped the automatic shutdown.

An equipment failure that caused multiple bypass valves to open Dec. 21 of last year also led to an unplanned shutdown of Peach Bottom Atomic Power Station's unit 2 reactor.

In response to those four unscheduled reactor shutdowns, the NRC has labeled unit 2 with a white performance indicator. A green indicator is awarded to reactors that require the basic level of inspection. The next level up, a white performance indicator, is assigned to a reactor that requires extra monitoring. As part of the additional inspections, NRC officials will examine the unit 2 reactor for equipment reliability and operator performance, Sheehan said. "These shutdowns pose no danger to the public," he said. Mixed findings at plant

Team investigated Sept. shutdown of 2 reactors

By KRISTIN FINAN Dispatch/Sunday News

A special team that analyzed the causes of, and responses to, an automatic shutdown of both reactors in September at the Peach Bottom Atomic Power Station reported mixed findings about the facility's handling of the event. The U.S. Nuclear Regulatory Commission and representatives from Exelon, the company that operates the plant, presented their early report last night to the public at the Peach Bottom Inn in Delta.

Lightning struck the plant on Sept. 15 and disturbed the local electrical grid. Because Peach Bottom receives energy from the grid as well as provides it, it shut down automatically around 1:30 a.m. when those power sources were reduced.

The six-person team of specialists from the NRC regional office will release a full report by Dec. 18. As it outlined its findings last night, the team said it found both positives and negatives in the way the situation was handled.

Malfunction: The Peach Bottom facility, which has been generating electricity since 1974, is on the west bank of the Susquehanna River in southeastern York County and serves about 2.5 million homes. It is one of 17 generation units operated by Exelon Nuclear.

A major problem with the September shut-down was a malfunction with a system backup, said NRC spokesman Neil Sheehan. Typically, if there is a problem with a reactor, emergency diesel generators provide more power. But the reactors shut off after an hour, and one of the diesel generators shut down.

Team members said that while the generator's failure appears to be an equipment problem, they were not yet sure who should have been accountable. Team members also found degraded conditions within the plant that should have been updated and said concerns voiced by staff members were never investigated.

Continued on the following page...They noted lapses in the monitoring of equipment, procedural problems

concerning what action should be taken after a shutdown and conflicts over which departments should take action about specific issues.

"We have not been as diligent at identifying problems and getting them out on the table as we need to," said Rusty West, Peach Bottom site vice president.

"We need to better understand all the equipment anomalies that we have and pursue them with great vigor."

But the team noted that the Peach Bottom staff acted quickly and correctly determined how to respond to the incident, the team reported.

And managers have been diligent about conducting internal investigations and taking proactive actions --- such as cleaning equipment and defining emergency procedures, it said.

But some audience members said the NRC should be doing more to prevent future shutdowns.

Sept. 15 was the plant's fourth automatic reactor shutdown in the past year. On July 22, Peach Bottom's unit 2 reactor lost power after generator problems. The same unit shut down previously on April 12 and Dec. 21.

In response, the NRC recently labeled unit 2 a white performance indicator, meaning it will be monitored more closely, Sheehan said. But Eric Epstein, chairman of Three Mile Island Alert, a group that monitors local nuclear plants, said the four shutdowns in a year are cause for concern.

"You should be concerned with the trend," Epstein said. "Any time there's a forced shutdown, it means the plant's safety systems are being challenged."

THE NRC's Inspection team found six "Green: violations as a result of the incidents. All six were deemed Non-Cited violations

This was the forty-third, forty-fourth, forty-fifth, forty-sixth, forty-seventh and forty-eighth Non-Cited Violation since June 1998. Exelon's total cost avoidance, i.e., "credit" for 48 Non-Cited Violations = \$2,490,000.

November 25, 2003 - NON EMERGENCY 10 CFR Section: 26.73 - FITNESS FOR DUTY Person (Organization): ANTHONY DIMITRIADIS (R1) Unit SCRAM Code RX CRIT Initial PWR Initial RX Mode Current PWR Current RX Mode 2 N Y 100 Power Operation 100 Power Operation 3 N Y 100 Power Operation 100 Power Operation Event Text FITNESS FOR DUTY NOTIFICATION DURING RANDOM DRUG TESTING

A contract employee tested positive during a random test. The employee's access to the protected area has been terminated. Contact the HOO for additional details. The licensee has informed the NRC Resident Inspector.

December 17, 2003 --PEACH BOTTOM-2 WAS AT 58% POWER AND RAMPING UP THIS MORNING FOLLOWING a reduction yesterday to 44% power in order to perform a planned control rod pattern adjustment, Exelon spokesman Ralph DeSantis said (NUCLEAR NEWS FLASHES)

Peach Bottom has rough week BY REBECCA J. RITZEL
Intelligencer Journal Staff

December 22, 2003 - Peach Bottom Atomic Power Station got a double dose of bad news last week. On Wednesday a routine test went awry, and on Thursday a report arrived in the mail warning that plant operator Exelon Nuclear likely will be cited for five safety violations for reactor shutdowns in September. On Tuesday, plant operators ran a test on the Unit 3 reactor's high-pressure coolant injection system. A turbine exhaust valve stuck open longer than expected, prompting workers to cancel the test midway through, according to a Nuclear Regulatory Commission report. Exelon Nuclear reported to the NRC that the plant was in "accident mitigation" status. The NRC classified the valve problem as a "non-emergency event."

Also last week, the NRC released a report concerning the September reactor shutdowns at Peach Bottom. Both active reactors went off-line Sept. 22 after a lightning strike in Chester County caused widespread power outages. An NRC inspection team visited the York County plant after the

incident. In a 38-page letter to Exelon CEO Jack Skolds, an NRC deputy director of reactor safety detailed results of the inspection. The inspectors determined Exelon workers responded "adequately" to the emergency. "Nevertheless," the report says, "the operators were challenged by equipment and procedural problems." Exelon likely will be cited for five safety violations as a result those problems. Of chief concern to the NRC is Exelon's failure to properly maintain its emergency generators according to their instruction manuals. One of the four generators failed during the power outage. On the NRC's color-coded scale, safety violations are classified, in descending order of risk, as "red," "yellow," "white" and "green." Exelon likely will receive a white violation at Unit 2 and a green violation at Unit 3 for the generator problems. Exelon has until Sunday to provide additional evidence before the NRC considers penalizing the utility. The NRC already has decided to cite Exelon for three green violations for other equipment malfunctions that occurred Sept. 22. The report also includes results from Exelon's own investigation into the lightning strike. PECO, an Exelon subsidiary, owns the power lines where the lightning strike occurred. A joint PECO/Exelon investigation found failures in circuit maintenance and a variety of problems in work practices.

When the lightning strike occurred, a circuit breaker failed to isolate the damaged power line, cutting off power to more than 100,000 PECO customers and shutting down three Exelon and PECO plants - Peach Bottom, Conowingo (Md.) Hydroelectric Station and Muddy Run Pumped Storage Facility in Holtwood.

Exelon determined Peach Bottom could have been isolated from the strike if power substations in Nottingham and Newlinville had been properly upgraded and maintained. Company officials said those upgrades will be included in widespread electrical infrastructure improvements. Report: Funds set aside for nuke cleanup inadequate

By AD CRABLE, Lancaster New Era

Dec 3, 2003, 13:53 EST, Congressional investigators say utilities are not adequately setting aside the hundreds of millions of dollars needed to clean up nuclear reactors at Three Mile Island and Peach Bottom when the plant sites close.

The report by the U.S. General Accounting Office claims that funds that, by law, must be set aside for restoring plant sites to their original condition may be as much as 25 percent lower than needed for TMI's Unit 2 reactor.

Decommissioning for Peach Bottom's closed Unit 1 reactor appears to be 51 to 100 percent underfunded, according to the report.

The cost of closing down and removing TMI Unit 2 was estimated at \$433 million in 1997. The cost of decommissioning Peach Bottom Unit 1 was recently estimated at \$129 million by plant owner Exelon Nuclear. The report did not say how much actually had been set aside to date in the decommissioning funds for the two reactors.

However, the owners of the two plants, where other reactors remain in

use, said today that the decommissioning funding report by the investigative arm of Congress is flawed and that the money will be there when the plant sites end their useful life several decades from now.

Updating a 1999 report that first warned that decommissioning funding at many U.S. nuclear plants was not adequate, the GAO said on Monday that the \$27 billion saved by the nuclear industry through 2000 was actually ahead of schedule.

But breaking down the savings by individual plant owners, the study said that owners of 42 of the 125 nuclear plants that have operated in the United States had accumulated fewer funds than needed to be on track to pay for eventual decommissioning, after the plants close.

Continued on the following page..."Under our most likely assumptions, these owners will have to increase the

rates at which they accumulate funds to meet their future decommissioning obligations," the 55-page report said. Furthermore, the report criticized the federal Nuclear Regulatory Commission -- the nuclear industry's governmental watchdog -- for not taking action to force utilities to step up funding to address inadequacies.

In 1988, the NRC began requiring owners to certify that sufficient money would be available when needed to decommission their nuclear plants.

Beginning in 1998, utilities were required every two years to show how much money had been set aside and where the money was coming from. Most funds come from ratepayers and investments in trust funds.

The GAO study singled out Exelon Nuclear, the owner of Peach Bottom and the active reactor at TMI, as being behind the curve on set-aside funding. GAO said the trust funds for 11 of the 20 nuclear power plants owned by the company were inadequate.

However, the GAO found that Exelon Nuclear was actually well above other utilities in saving for the future closure of TMI's active Unit 1 reactor and Peach Bottom's two active reactors. And Exelon spokesman Craig Nesbit said the more-than-adequate funding will take care of any deficiency for the other Peach Bottom reactor that closed in 1974. Nesbit criticized the GAO report, saying it looked only at individual units instead of entire plant sites, and did not consider specific decommissioning strategies, such as Exelon's.

He also said the GAO study was "skewed" because it did not take into account that most nuclear plants, such as Peach Bottom and TMI, will be relicensed for another 20 years, which gives utilities more time to save decommissioning funds. "All of Exelon's plants are adequately funded for decommissioning now, and will be in the future," Nesbit said.

Continued on the following page...Though Exelon owns the site, the responsibility for decommissioning the

TMI Unit 2 reactor, closed since a 1979 accident, lies with FirstEnergy Corp., which bought out former TMI owner GPU.

The GAO study indicated the funding shortage is between 1 percent and 25 percent for TMI's Unit 2. FirstEnergy spokesman Scott Shields denied today that there were inadequate funds for restoring the Unit 2 site to its original condition.

"We will continue to collect funds for the decommissioning for Unit 2 and we will be fully funded by the time the plant is retired," he said. Shields noted the site can't be cleaned up until Unit 1 is closed. TMI's license expires in 2014 but an extension is expected. Eric Epstein, an expert witness on decommissioning before the Pennsylvania Public Utility Commission and chairman of TMI-Alert, a safeenergy citizens group, is not so confident. He said the GAO study on decommissioning shortcomings is just the tip of the iceberg. Citing the escalating costs of disposing of low-level and high-level nuclear waste, Epstein said "clearly the utilities underestimate and lowball decommissioning costs." Epstein fears utilities will not be making the profits in the future when plants are closed down and will not be able to pay for what it will actually cost to restore nuclear plant sites. People not yet born may have to pay for that shortcoming through higher electric bills, he said. Inadequate funding for future closures was a constant concern expressed by former Lancaster mayor Art Morris when he chaired a citizens advisory panel on the cleanup of TMI in the 1980s. "It's just the same old story. It's absolutely remarkable that after all these years of public comment and criticism that the Nuclear Regulatory Commission just sits and does nothing about (inadequate funding)," Morris said today. "The taxpayers will have to pay for it. There needs to be an NRC that stays on top of this and monitors it."

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.)
- NEW YORK,

Jan 13, 2004 (Reuters) - Exelon Corp., the No. 1 U.S. nuclear plant operator, on Tuesday said it named nuclear industry veteran Christopher Crane as chief nuclear officer and president of its key nuclear division. Crane replaces John Skolds, who was named president of Exelon's energy delivery unit -- a position left vacant by the resignation of Michael Bemis.
Jan 13, 2004 Reuters
Power News Sat,

Jan. 17, 2004 Authorities: Pilot who buzzed area was drunk
By NICOLE WEISENSEEEGAN
The pilot who terrorized the airways with his erratic flying for four hours Thursday night - circling the Limerick nuclear plant and buzzing

Philadelphia International Airport - was drunk, authorities said yesterday. When he emerged from his single-engine plane, he was staggering, his eyes were bloodshot, and his pants were unbuttoned and unzipped, authorities said. Tests showed that the pilot, John Salamone, owner of a Pottstown concrete company, had a blood-alcohol level of 0.13, over the legal limit of .08. Until tests are complete, however, he has not been charged with DUI, according to Montgomery County District Attorney Bruce L. Castor Jr. Salamone, 44, owner of J. Vincent Concrete Contractors, was released into the custody of his brother-in-law. The single-engine plane he was flying is registered to his firm, records show.

Jim Peters, a Federal Aviation Administration spokesman, said his agency had opened an investigation into Salamone but have not yanked his license. "At the end we will make a recommendation about what to do," he said. That could mean anything from no action to a civil penalty, or suspension or revocation of his license. Salamone did not return phone calls requesting comment.

Salamone took off from Pottstown-Limerick Airport between 6:15 and 6:30 p.m., Peters said. He first flew over Center City, then headed toward Philadelphia International Airport, prompting controllers to order six aircraft that were on final descent to clear out of the way, Peters said.

Salamone then headed to South Jersey and attempted to land at an airport outside Glassboro before returning to Philadelphia airspace. He declined to land in Philadelphia, and then headed to Limerick, where he landed briefly there, before taking off toward the nuclear plant. He finally landed again at Limerick airport and was arrested, authorities said. York Daily Record: NRC watching Peach Bottom -

The power station was issued violations after a September reactor shutdown.

By SEAN ADKINS Daily Record staff Tuesday,

February 10, 2004 - The U.S. Nuclear Regulatory Commission will be more vigilant of Peach Bottom Atomic Power Station's Unit 2 reactor as result of a second-tier safety violation. The commission has penalized the Unit 2 reactor with a "white" finding related to the failure of an emergency diesel generator during an unscheduled Sept. 15 reactor shutdown. A white violation refers to an event at the plant that is considered as of low to moderate safety significance.

Since the generator failure affected both of the plant's units, NRC officials tacked on a green violation in regard to the power station's Unit 3 reactor.

A green violation is an event characterized as being of very low safety significance, said Neil Sheehan, spokesman for the NRC. The commission decided on a green violation because fewer safety-related electrical loads powered by the emergency generator exist for Unit 3. "This will help us better know where we need to focus an increased level of attention going forward," Sheehan said.

A bolt of lightning struck a Chester County power pole Sept. 15, generating an electrical surge along power lines that feed into Peach Bottom Atomic Power Station.

The strike led to the automatic shutdown of the plant, which triggered the formation of a special, augmented NRC inspection team.

As part of its findings, the team found that faulty protection circuitry and a loose wire failed to contain the surge that disabled the plant.

Exelon has replaced all damaged fuses and tightened necessary wires to help ensure a similar event will not shut down the power station.

Within moments of the September shutdown, the plant's four diesel generators kicked on to power the station's vital equipment and offices. About an hour later, one of the reserve generators seized. Exelon declared a "discretionary" unusual event — the lowest of the NRC's emergency categories. "This is not a common thing," Sheehan said. "These generators should operate smoothly."

The commission's inspection team found that deficient procedures were followed during the 1992 installation of generator adapter gaskets. Combustion gas leaked into the jacket water cooling system — a problem that led to the automatic tripping of the generator Sept. 15.

In March and April 2003, Exelon took corrective actions to repair the observed low jacket water pressure conditions. The NRC said the...problem was not resolved.

Last June, commission inspectors documented that lube oil had leaked from loose flange joint bolts on an emergency diesel generator at the plant. That leak caused a small fire in the exhaust manifold during a test.

The NRC responded to the fire by issuing a green violation.

Exelon has less than a month to reply to the commission's white finding.

The company will not appeal the determination, said Craig Nesbit, a company spokesman.

Exelon agrees with the NRC's findings, he said.

February 22, 2004 Event Text

MANUAL SCRAM AT PEACH BOTTOM 2 DUE TO

DECREASING CONDENSER VACUUM

"Peach Bottom Unit 2 reactor was manually scrammed due to degrading main condenser vacuum. The reactor was manually scrammed prior to reaching the automatic scram setpoint. All plant systems responded as expected with no significant issues noted. A Group II and Group III Primary Containment Isolation was received due to reactor water level passing through 1 inch. All isolation systems responded as required and repositioned to their expected positions." The licensee also indicated that all control rods properly inserted into the core. The method of decay heat removal was using the main condenser. The licensee initiated a post scram review to identify and correct the source of degrading vacuum. The licensee also indicated the manual scram was initiated at 25 inches and lowering of condenser vacuum.

The licensee notified the NRC Resident Inspector. YDR: Reactor shutdown no threat - Mechanical problems caused Peach Bottom's

Unit 2 reactor to be shut down Sunday.

By SEAN ADKINS Daily Record staff Wednesday,

February 25, 2004 -Operators manually shut down Peach Bottom Atomic Power Station's Unit 2 reactor Sunday after a series of mechanical problems.

Last week, control room workers monitored an air leak in the reactor's condenser — equipment used to turn steam into water. The condenser pumps that water back to the reactor.

On Tuesday, plant officials determined the leak came from an expansion joint caused by routine wear and tear of the system, said Dana Melia, spokeswoman for Exelon Generation. Exelon co-owns and operates the power station. "That type of wear and tear is typical of any steam plant," Melia said. That leak caused a loss of vacuum — a piece of equipment found inside the condenser, she said.

The shutdown caused no threat to public health or the plant's ability to distribute electricity, Melia said.

Peach Bottom Atomic Power Station's Unit 3 was not affected by its neighbor's shutdown and continues to function at full power.

The second unit's reactor is designed to go into automatic shutdown if the vacuum level drops to a specific set point, Melia said.

On Sunday, operators elected to manually take the reactor offline and bring the unit to a cold shutdown. "(A shutdown) is safer when it's manual rather than automatic," Melia said. "You have more control over it." All equipment used to carry out the shutdown functioned as it should, Melia said. "They did what they were supposed to do," said Diane Screnci, spokeswoman for the U.S. Nuclear Regulatory Commission. "The plant's systems responded as expected." Soon after the 3:11 p.m. shutdown, the plant notified its resident NRC inspector of the unit's problems.

The commission is having its inspector look into the cause of the shutdown, Screnci said. As for Exelon, officials are investigating the cause of the leakage and what steps are necessary to bring the plant's second reactor back online, Melia said. "We are trying to determine why it happened," she said.

Plant officials will use the shutdown as an opportunity to conduct routine maintenance of the site such as the checking of valves.

While Melia did not say when the reactor would return to service, Screnci said the time frame is more "a matter of days rather than months."

YDR: NRC still watching Peach Bottom -

Four unplanned shutdowns in about a year netted the reactor a 'white' violation, which gets it extra oversight.

By SEAN ADKINS Daily Record staff Saturday,

April 10, 2004 -At bottom: · IF YOU GO A low to moderate safety violation discovered last year means additional regulatory oversight for Peach Bottom Atomic Power Station's Unit 2.

The unit will face a Nuclear Regulatory Commission supplemental inspection later this year as a result of deficient performance based on its number of unplanned shutdowns.

The commission will follow a normal inspection schedule for the power station's third unit through Sept. 30, 2005. Based on the assessment of an NRC inspection team, the commission cited Unit 2 with a "white" violation for the failure of the emergency diesel generator.

Following a Sept. 15 unplanned shutdown of Units 2 and 3, a reserve generator seized.

The generator, one of four, helps power the plant's vital equipment and Offices. A commission inspection team later found that deficient procedures were followed during the 1992 installation of generator adapter gaskets. Gas leaked into the equipment's jacket water cooling system — a problem that led to the automatic tripping of the generator Sept. 15. The NRC team determined that corrective actions Exelon took to repair the observed low jacket water pressure conditions in March and April 2003 were inadequate. The problem was not resolved.

Since that time, the plant has created corrective actions to ensure the operation of the generators, said Pete Resler, spokesman for Exelon Nuclear, which co-owns and operates the power station.

For example, the plant has revised maintenance, testing and inspection procedures for the diesel generators.

Training materials regarding the generators have been updated, Resler said.

Aside from the low to moderate safety breach, five "green" violations at Unit 2 in 2003 caught the attention of the commission.

A green violation is characterized as being of very low safety significance.

Some of the green infractions include problems with the second unit's safe shutdown emergency lights and the emergency diesel generator fire protection system. "These findings highlight a need for Exelon to improve this area," according to a March 3 letter sent by the NRC to the utility.

Commission officials will make another trip to Peach Bottom Atomic Power Station's Unit 2 in September to review the causes behind the reactor's four unplanned shutdowns per 7,000 critical hours, or roughly one year of operation.

The shutdowns occurred between the fourth quarter of 2002 and the fourth quarter of 2003, said Diane Screnci, spokeswoman with the NRC.

The fourth shutdown that occurred during the third quarter of 2003 netted the second reactor a white performance indicator, she said.

Increased oversight was maintained by the NRC at Peach Bottom-2, "which will face a Nuclear Regulatory Commission supplemental inspection later this year as a result of deficient performance based on its number of unplanned shutdowns. The commission will follow a normal inspection schedule for the power station's third unit through Sept. 30, 2005 (York Daily Record.) Unplanned shutdowns and equipment failure were to blame.

By SEAN ADKINS Daily Record staff Thursday,

April 15, 2004 -With little more than a projection screen between them, officials with both the Nuclear Regulatory Commission and Exelon Generation met Wednesday night at the Peach Bottom Inn to walk through the agency's annual safety performance assessment of Peach Bottom Atomic Power Station.

Based on a 2003 low-to-moderate safety violation, commission officials will host a supplemental inspection of Unit 2 to ensure the reliability of the plant's diesel generators.

In September, NRC staff will investigate through an additional inspection the reason behind Unit 2's four unplanned shutdowns per 7,000 critical hours, or roughly one year of operation. The unscheduled shutdowns occurred between the fourth quarter of 2002 and the fourth quarter of 2003.

The fourth shutdown that occurred during the third quarter of 2003 netted the second reactor a white performance indicator — a violation of low to safety significance.

Between Jan. 1 and Dec. 31, 2003, both Peach Bottom Atomic Power Station's Unit 2 and 3 reactors racked up 17 green violations — an infraction of very low safety significance, said Brian Holian, deputy director of reactor projects for the NRC's Region 1.

Some of the green infractions include problems with the second unit's safe shutdown emergency lights and the emergency diesel generator fire protection system. "Seventeen green violations," Holian said, "it's a hefty amount. But you have to remember it's a twin reactor plant and that's for both units."

Bill Levis, vice president of mid-Atlantic operations for Exelon, said the company views the violations as an indicator that the plant did not meet expectations. "We can clearly do better than that," he said.

The commission will follow a normal inspection schedule for the power station's third unit through Sept. 30, 2005.

On Sept. 15, one of the plant's four emergency diesel generators seized. The equipment's failure occurred in the hours following an unplanned shutdown of both reactors.

A commission inspection team later found that deficient procedures were followed during the 1992 installation of generator adapter gaskets. Gas leaked into the equipment's jacket water cooling system — a problem that led to the automatic tripping of the generator.

Typically, the plant runs all four diesel generators for at least two hours every two weeks to check for reliability, said Craig W. Smith, senior resident NRC inspector at Peach Bottom Atomic Power Station. The NRC team determined that corrective actions Exelon took to repair the observed low jacket water pressure conditions in March and April 2003 were inadequate. The problem was not resolved.

"We didn't do enough fast enough," Levis said. "We recognize our obligation to public health and safety. We take that very seriously." Since the generator failure, the plant has instituted a monitoring system that tracks the amount of gas that could leak into the generator's cooling system, said Paul Davison, director of engineering for the power station.

Following the failure, the plant checked all the generator adapter gaskets

and installed new equipment as needed, he said.

Other tests that were in place prior to the generator shutdown scan for temperature, engine reliability and vibration control.

"We will follow all this up with inspections," Holian said. "The proof will be in the pudding."

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

HARRISBURG: 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.

Groups want action on nuke fuel storage

Watchdogs prod federal regulators to shore up spent-fuel pools against possible terrorism. Peach Bottom is among plants affected.

August 11, 2004

Day: Wednesday Page: B-1 Byline: Ad Crable

LANCASTER NEW ERA - Used, deadly uranium fuel stored at the Peach Bottom and 31 other similarly designed nuclear reactors around the United States is especially vulnerable to terrorist attack, watchdog groups charge. "Nuclear reactors are pre-deployed weapons of mass destruction," said Deb Katz, executive director of Citizens Awareness Network, one of three-dozen public interest groups signing the petition, including Greenpeace, Union of Concerned Scientists and the locally based Three Mile Island Alert.

The groups filed a petition for action with the U.S. Nuclear Regulatory Commission, calling on the agency to immediately address structural vulnerabilities to terrorism at the plants. "It is the NRC's job to protect our health and safety and assure public confidence in the regulatory process. Presently, NRC's efforts are inadequate," said Eric Epstein of TMI Alert and a candidate for the state Senate. While alleging that all 103 commercial nuclear plants in the country are vulnerable to accidents or "acts of malice or insanity," the 33-page petition particularly points the finger at spent-fuel pools at Mark I and II boiling water reactors, such as that found at Peach Bottom.

At those nuclear plants, used uranium fuel rods are placed in pools of water high above the ground, covered by only a lightweight roof and walls, the groups say. The arrangement, they say, makes the pool vulnerable to terrorist attacks from planes or on the ground. "If a pool is breached, there is no surrounding structure or backfill to inhibit the drainage of water. Its cooling system is vulnerable to attack at several points. The exterior configuration of the reactor building facilitates accurate aiming - for example, of an explosiveladen aircraft - by a knowledgeable attacker," the petition states.

The group says breaching of spent-fuel pools "could cause great public harm" with widespread radiation fallout.

The groups outline a number of steps they feel the NRC should take, including beefing up on-site security; re-equipping spent-fuel pools with lowdensity racks so that spent fuel would not ignite if water were lost from the pool; establishing ways to recover from loss of water; and improving emergency response plans for surrounding communities.

The petition comes shortly after concerns about spent-fuel vulnerability were voiced by some members of Congress.

Craig Nesbit, spokesman for Peach Bottom operator Exelon Energy, said this morning that "there is nothing substandard about any of Exelon's plant designs."

The NRC has no comment on the petition while the agency is processing it to see if it meets the NRC standards for action, spokeswoman Diane Screnci said.

A spokeswoman for the Nuclear Energy Institute, a nuclear industry group, said she had not yet seen the petition.

In another development affecting Peach Bottom, the federal Department of Energy announced it would pay Exelon at least \$300 million for costs associated with storage of spent fuel at its nuclear plants.

The DOE had promised in the early 1980s to accept used fuel from U.S. reactors for disposal, beginning in 1998. Amid extensive controversy, however, a national repository has not yet been built. Exelon and 64 other companies sued DOE for not taking the fuel. By SEAN ADKINS Daily Record/Sunday News,

September 1, 2004 -The Nuclear Regulatory Commission has requested that officials at Peach Bottom Atomic Power Station Unit 2 submit in writing plans to address inadequate corrective actions for known equipment problems.

The cross-cutting issue includes two "green" violations of very low safety

significance listed within the commission's mid-cycle performance review and inspection plan of the power station.

That review stretched from July 1, 2003, to June 30. The NRC released the review Monday.

Next month, a team from the NRC will travel to the plant to run an additional inspection on Unit 2 to determine how Exelon has responded to "white" performance indicators found in the third quarter of 2003 and the first quarter of 2004.

Exelon co-owns and operates Peach Bottom Atomic Power Station.

The power station's Unit 3 performance requires no additional NRC oversight. That unit will follow a normal inspection schedule through March 31, 2006.

The supplemental inspection will investigate the reason behind Unit 2's four unplanned shutdowns per 7,000 critical hours, or roughly a year of operation.

The unscheduled shutdowns occurred between the fourth quarter of 2002 and the fourth quarter of 2003. One of the unplanned shutdowns included the failure of one of the plant's four emergency diesel generators. Following the shutdown, a commission inspection team found that deficient procedures were run during the 1992 installation of generator adapter gaskets. Gas leaked into the equipment's jacket water cooling system — a problem that led to the automatic tripping of the generator.

The NRC determined that the problem warranted a "white" finding, or a violation of low to moderate safety significance.

Earlier this year, the plant formed a root-cause analysis team from the power station's maintenance and engineering divisions to deal with the failed diesel generator, said Dana Melia, an Exelon spokeswoman. The plant put its self-critical analysis into action in June and further modified its plan last month, she said. The actions focused on the maintenance of the generator and other reliability conditions, Melia said. The NRC will look at all the plant's actions during its September inspection.

Power station officials are now forming a second root-cause team to deal with the plant's ongoing problems with cross-cutting issues, Melia said.

Cross-cutting issues are events that affects many different areas of plant performance, said Neil Sheehan of the NRC. "The substantive cross-cutting issue was based on several inspection findings in which corrective action for a known equipment problem was either insufficient or delayed for implementation," according to the mid-cycle review.

The most recent findings deal with problems related to Unit 2's high-pressure coolant injection oil system and high-pressure service water valves, Sheehan said. Both problems resulted in green violations.

The high-pressure coolant injection oil system is a reserve safety operation put into play to shut down the plant quickly, Sheehan said.

The oil is used to lubricate the system that injects coolant into the reactor vessel to keep the fuel cool at times of emergency, he said.

In June, plant officials found that oil flow to a part of the system had been interrupted. As a result, damage to the turbine bearing and rotor rendered the

machine inoperable. The plant had to replace the bearing and rotor. The system was unavailable.

The second green violation dealt with corrective actions of high-pressure service water valves that pull water from the Susquehanna River that is used to cool down various plant components, Sheehan said.

How the plant will respond to the violations will be part of the letter sent to the NRC in October, Melia said.

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 22, 2004 Event Text

REACTOR SCRAM AND ECCS INJECTION FOLLOWING OPENING OF TURBINE BYPASS VALVES

"At approximately 04:55 on December 22, 2004, Unit 2 experienced a malfunction of Electro-Hydraulic Control (EHC) system resulting in opening of main turbine bypass valves and resultant loss of reactor pressure. The reactor automatically shutdown on RPS with the completion of a Group I isolation signal (Reactor pressure 850 psig and Reactor mode switch in RUN) resulting in a closure of the Main Steam Isolation Valves (MSIVs). Reactor level lowered to (ECCS) initiation set-point of -48 inches and High Pressure Coolant Injection (HPCI) system and Reactor Core Isolation Coolant (RCIC) system automatically initiated and restored level. When reactor level lowered below the 1 inch setpoint, Group II and III Primary Containment Isolation System (PCIS) signals initiated. All Unit parameters are stable and RPS/PCIS/ECCS systems performed as designed. MSIVs remain closed. Reactor level and pressure are stable with HPCI and RCIC systems in control. Group I, II, and III isolations have been reset. The EHC malfunction is presently under investigation by Station Management." All systems functioned as required. The reactor water level is now at 23 inches

and stable and the licensee is conducting a slow depressurization to Mode 4 to investigate the EHC system malfunction. The level transients experience during the scram would be expected with the closure of the MSIVs. The licensee has notified the NRC Resident Inspector.

Peach Bottom-2, already under increased NRC supervision, scrams again

REACTOR SCRAM AND ECCS INJECTION FOLLOWING OPENING OF TURBINE

BYPASS VALVES

"At approximately 04:55 on December 22, 2004, Unit 2 experienced a malfunction of Electro-Hydraulic Control (EHC) system resulting in opening of main turbine bypass valves and resultant loss of reactor pressure...All Unit parameters are stable and RPS/PCIS/ECCS systems performed as designed...The EHC malfunction is presently under investigation by Station Management...The reactor water level is now at 23 inches and stable and the licensee is conducting a slow depressurization to Mode 4 to investigate the EHC system malfunction...The licensee has notified the NRC Resident Inspector." (NRC, Region I, Power Reactor Event Number: 41277.)

Continued on the following page... By TOM JOYCE Daily Record/Sunday News Saturday,

December 25, 2004 -Peach Bottom Atomic Power Station's Unit 2 reactor had an emergency shutdown early Wednesday morning. It was down for about 48 hours, and started up again on Friday morning, according to Craig Nesbit, a spokesman for Exelon, the company that owns the plant.

No radiation leaked during the shutdown, Nesbit said. In fact, the shutdown didn't occur in a portion of the plant that contains radiological parts. According to Nesbit, the problem occurred when a circuit card malfunctioned in the electronic hydraulic control system.

The plant shut down, as it's designed to do in such circumstances. Nesbit characterized it as an engineering issue rather than a safety issue.

The time-consuming part was figuring out precisely where the malfunction occurred. "It's a relatively simple operation, but it takes a few days," Nesbit said.

The plant has experienced several emergency shutdowns in the past two years, Nesbit said. Plant officials are now conducting a "root cause investigation" to see if the problems are all the result of an underlying problem, or simply isolated occurrences. "A root cause investigation is a very detailed and intense look at the root cause of the problem," Nesbit said.

The Nuclear Regulatory Commission could not be reached for comment. On Friday, the Lancaster Intelligencer-Journal reported that an NRC spokesman said the commission is concerned about the frequency of Peach Bottom's shutdowns.

In August, the NRC sent Exelon's CEO a letter warning the company to improve its routine maintenance work for the remainder of 2004 or face increased federal oversight. And in September, the NRC sent a special inspection team to see what Exelon was doing to prevent emergency shutdowns at Unit 2.

Feb. 7, 2005- Peach Bottom Unit 2 shuts down for valve replacement

Chicago-based energy company Exelon Corp.'s 1,110-megawatt Unit 2 reactor at the Peach Bottom nuclear station in Pennsylvania exited a work outage and ramped up to full power by early Monday, the U.S. Nuclear Regulatory Commission said in its power reactor status report.

The company shut the unit on Feb. 2 to replace a safety relief valve.

The 2,220 MW Peach Bottom station is located in Peach Bottom, Pennsylvania, about 75 miles southwest of Philadelphia. There are two 1,110 MW units 2 and 3 at Peach Bottom. Unit 3, meanwhile, continued to operate at full power.

One megawatt powers about 1,000 homes, according to the North American average. Exelon Nuclear, a unit of Exelon's Exelon Generation subsidiary, operates the station for its owners: Exelon (50 percent) and New Jersey-based energy company Public Service Enterprise Group Inc. (PSEG) (50 percent).

In December 2004, Exelon agreed to acquire PSEG. Pending regulatory and shareholder approvals, the companies expect to complete the deal in 2006.

-Report from Reuters

Feb. 9, 2005 -Peach Bottom Unit 2 back in production

Chicago-based energy company Exelon Corp.'s 1,110-megawatt Unit 2 at the Peach Bottom nuclear station in Pennsylvania ramped up to 94 percent of capacity by early Wednesday, the U.S. Nuclear Regulatory Commission said in its power reactor status report.

On Tuesday, the unit was operating at 64 percent of capacity as it increased power following a planned control rod pattern adjustment.

The company performed the rod pattern adjustment to optimize the efficiency of the fuel in the reactor after the reactor exited an outage started on Feb. 2 to replace a safety relief valve.

The 2,220 MW Peach Bottom station is located in Peach Bottom, Pennsylvania, about 75 miles southwest of Philadelphia. There are two 1,110 MW units 2 and 3 at Peach Bottom. Unit 3, meanwhile, continued to operate at full power. One megawatt powers about 1,000 homes, according to the North American average.

-Report from Reuters

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 assign 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 issued a 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 30, 2005- NRC reviews Peach Bottom, plant a leader in shutdowns

Attendees seemed more in the dark last night after a 90-minute session aimed at shedding light on Peach Bottom Atomic Power Station's performance last year.

Exelon and Nuclear Regulatory Commission officials didn't exactly wow the crowd of about 40 with a slide show highlighting corporate progress, touting a 25 percent reduction in radioactive exposure to employees and diagramming federal "matrixes" and "cornerstone" safety guidelines.

One attendee asked why the commission couldn't just grade performances A to F, drop bureaucratice and spell out problems that affect the public.

The bottom line: The NRC found that Peach Bottom improved in 2004 with two shutdowns of its Unit 2 reactor compared to three in 2003.

The shut downs placed Peach Bottom in the **top three nationwide** for unexpected shutdowns right behind Indian Point 2 in New York and Saint Lucie Unit 2 in Florida. Five shutdowns in Unit 2 over two years is a lot when compared to the national average of less than one shutdown annually at the country's 103 commercial plants, said Eric Epstein of Three Mile Island Alert, a Harrisburg-based nonprofit citizens' organization. The NRC said the shutdowns, called "scrams," were low-level safety risks but noteworthy nonetheless.

Want better procedures: Federal officials also warned the plant, operated by Exelon Corp., that its procedure in finding and reporting causes for shutdowns needs improvement. "They said our focus regarding inspections was too narrow," said Robert Braun, Exelon's site vice president at Peach Bottom. "We'll apply what they told us, which was to broaden our investigation."

Braun said that the shutdowns pose no threat to the public but only affect the company's bottom line. He further touted adherence to safety guidelines saying the plant was taking a "proactive approach." That tack, he said, would help plant workers discover problems such as the cause of a Unit 2 shutdown in July 2003.

A piece of broken fan belt that had been lost "a number of years ago" entered a cooling system and caused the shutdown. The debris wasn't found when the belt broke, but "years later it came back to haunt the plant," Braun said. "We continue to improve our existing processes," he added.

Epstein questions numbers: Epstein asked corporate and federal officials how many workers were employed at Peach Bottom, whether they had decreased in the past five years and if so, would that affect plant performance and the reduction in radiation exposure. NRC Chief of Projects Branch 4 Mohamed Shanbaky said the plant was in federal compliance with the number of employees needed for high-profile jobs such as reactor operators.

Shanbaky further said the NRC doesn't focus on the overall number of employees but rather whether federal rules are obeyed and safety regulations adhered to.

"This meeting was the NRC's assessment for 2004," said April Schlipp, Exelon spokeswoman, who added that there have been no staffing changes since the 2003 assessment. "We've been able to improve for the past two years; that's really the most relevant here."

Beth Birchall, a Lancaster County resident, sat in the back of the Peach Bottom Inn banquet room shaking her head.

"They seemed prepared," she said. "But there wasn't a lot of information."

The NRC has scheduled quarterly, team and regional inspections of the plant in 2005.

-Report by Kathy Stevens of the York Dispatch

May 27, 2005 -Many emergency sirens would not work if power lines were down

In the event of a nuclear accident or an act of terrorism at a U.S. nuclear power station simultaneously occurring with an electrical grid failure, only 27 percent of the nation's

62 nuclear power emergency planning zones using public notification siren systems are prepared to fully operate their emergency sirens independent of the main power lines,” emergency enforcement petition filed by Nuclear Information & Resource Service, Three Mile Island Alert and numerous citizens’ groups.

While the Nuclear Regulatory Commission revealed that some but not all of the sites without backup power are preparing to create battery backups, the NRC actually denied the petition, and argued that the concerned citizens should instead use a petition for rulemaking process that can take as long as two years.

Peach Bottom is grid-dependent for sirens.

July 2005- Peach Bottom Investigation: NRC probes shutdown at Peach Bottom

Officials with the Nuclear Regulatory Commission will follow up on the cause of a turbine trip that led to the automatic shutdown of Peach Bottom Atomic Power Station's Unit 2 reactor on July 10, 2004.

At the time of the shutdown, the unit's reactor coolant system experienced a high pressure condition that caused both recirculation pumps to trip. As a result, three safety-relief valves lifted and reseated.

By Tuesday morning, the reactor had returned to 67 percent power.

In September 2004, the NRC staff, through an additional inspection, investigated the reasons behind Unit 2's four unplanned shutdowns per 7,000 critical hours, or roughly one year of operation. The unscheduled shutdowns occurred between the fourth quarter of 2002 and the fourth quarter of 2003.

On December 22, 2004, Peach Bottom Atomic Power Station's Unit 2 reactor had another emergency shutdown and was off-line for 48 hours.

Circuit Breaker Replacement Primary Bushings Not Tested to American National Standards Institute (ANSI) Standards

While investigating the dedication process of a different circuit breaker component, GE Energy-Nuclear (GE) discovered that ANSI testing had not been accomplished for the AM breaker primary bushings used in Magne-Blast circuit breakers. The replacement primary bushings were provided by GE Supply PSC, Sharon Hills, Pa., and supplied to Watts Bar and Peach Bottom, units 2 and 3, by GE as safety-related components. The NRC issued a report to inform all licensees of this issue since additional licensees may have obtained these devices through other dedicating entities.

Previously, the GE product department produced Magne-Blast circuit breakers and switchgear, that was qualified to the appropriate ANSI C37 standards.

When the GE breaker plant operation facility was closed, GE contracted with a vendor to manufacture primary bushings. The contractor uses a similar but not identical insulating material, and has variations in the manufacturing process for the bushing construction. GE dedication specifications addressed the replacement insulation material, but not the variation in the manufacturing process. An implicit assumption in the GE dedication

specification was that testing in compliance with the applicable ANSI standard had been completed.

GE has determined that design tests in accordance with certain ANSI C37 Industry Standards for Switchgear were not performed prior to implementation of bushing design changes for Parts Q0845D0123G001, and Q0845D0124G001 and G003, which have been delivered to Peach Bottom 2, 3 and Watts Bar 1 for use as replacement primary bushings in Magne-Blast circuit breakers.

For primary bushings purchased under the identified purchase orders and placed in inventory, GE recommended that the primary bushings in inventory not be installed until after successful completion of the ANSI standards testing.

For primary bushings purchased under the identified purchase orders and installed in Magne-Blast circuit breakers, GE recommended that no corrective or preventive action be taken, pending completion of the ANSI standards testing.

- From reports by York Daily Record and NRC documents

July 21, 2005 - Inspection finds only 'Green' problems

An inspection of the Peach Bottom Atomic Power Station resulted in two findings of "very low safety significance" that were categorized as Green by the NRC. Neither finding was cited, according to the report.

A report on the inspection by the Nuclear Regulatory Commission stated that Peach Bottom staff identified "inadequate procurement of quality services for the commercial grade dedication of the Unit 3 high pressure coolant injection (HPCI) electronic flow controller." The report explained the internal power supply was not properly identified for replacement to "preclude any age-related degradation" and failed while installed in the Unit 3 HPCI.

The report said this failure affects the ability to ensure "the availability, reliability and capability of system that respond to an initiating event to prevent undesirable circumstances." A single train system was unavailable for less than three days because of this loss of safety function, the report said.

Another finding showed that procedure instructions prepared but not in a timely manner, upon discovery of an inoperable component and leakage of a component boundary for Unit 2. The leak was repaired and Unit 2 returned to service, the report said, explaining why, though the finding was considered "greater than minor" that there was no citation.

-Report by Marlene Lang

Aug. 30, 2005 -Peach Bottom's mid-cycle performance review receives a 'White' rating for three shutdowns in 12 quarters

The Peach Bottom Atomic Power Station Unit 2 had what the NRC terms "three scrams" with a "loss of normal heat removal" all within 12 calendar quarters, the plant earned itself an unusual White Performance Indicator (PI).

A SCRAM is an industry acronym representing a nuclear reactor shutdown (Skived Coke Rod Adversive Motion).

All of the other findings by inspectors were classified as Green, and considered of "very low safety significance."

-Report by Marlene Lang

Sept. 12, 2005 - NRC inspectors: No findings of significance at Peach Bottom

The Nuclear Regulatory Commission released a report on its most recent inspection of the Peach Bottom Atomic Power Station, saying no findings of significance were identified, but adding that minor problems were found.

The report went on to explain that "causal evaluations for equipment issues and events reasonably identified the causes of the problem and developed appropriately corrective actions." The report added, "However, for some of the issues affecting human performance, the evaluations were not of sufficient depth to identify the base root cause; therefore, the corrective actions did not prevent further human performance errors of a similar nature."

In two cases, read the report, "operability determinations did not consider all the applicable information to support the final conclusion that the equipment was operable." Corrective actions were typically implemented in a timely manner, the inspectors said, but added that they found in one case, "corrective actions were not adequate to correct the problem, and did not prevent reoccurrence."

-Report by Marlene Lang

Sept. 13, 2005 -Peach Bottom 2 nuke exits outage

Exelon Corp.'s 1,112-megawatt Unit 2 reactor at the Peach Bottom nuclear power station in Pennsylvania exited an outage and ramped up to 43 percent of capacity by early Tuesday, the U.S. Nuclear Regulatory Commission said in a report.

- Report by Reuters

Sept. 19, 2005 -In a failure to follow procedures, plant operators entered the Unit 3 reactor's drywell after a reactor shutdown but did not, before entering, collect and analyze a radiation sample for airborne particulate and iodine, as required by code.

The failure could have resulted in worker radiation exposure at unsafe dose levels, said a Nuclear Regulatory Commission report made in January, 2006.

Because the two individuals who entered did not sustain any significant dose, no citation was made and the finding was labeled Green.

Sept. 30, 2005 -Fire barrier systems inadequate in real fires, says NIRS

At a public meeting, Nuclear Regulatory Commission staff "announced their recommendation to the Commission to drop a proposed rule making that would substitute controversial "manual actions" for federally required nuclear power station fire protection requirements on electrical cabling (physical fires, minimal cable separation with automated detection and suppression) vital to shutting down the reactor in the event of a significant fire," according to an industry newsletter.

According to Nuclear Information & Resource Service (NIRS), "Since 1992, NIRS has identified widespread nuclear industry violations where fire barrier systems, have dramatically failed standardized industry fire tests and would likely fail to protect reactor safety systems in the event of a real fire."

The NRC subsequently declared the fire barriers "inoperable" for protecting electrical power circuits, control and instrumentation cables used in the event of fire to remotely operate reactor shutdown.

As a result, the NIRS explained in the Oct. 14, 2005 issue of Nuclear Monitor, "the majority of the U.S. nuclear power industry was found to be in violation of safety standards as prescribed under current Code of Federal Regulation."

The report went on to say that "the federal agency (NRC) failed to take effective enforcement action and require that operators become compliant with the current fire protection law by installing qualified fire barriers or maintaining minimal separation requirements between electrical circuits for reactor safety-related equipment.

Oct. 31, 2005 -NRC announces inspection

The NRC informed Exelon Nuclear that it would perform a triennial fire protection baseline inspection in January and February of 2006. A letter stated the NRC would make an information gathering visit the week of Jan. 9 and would perform the onsite inspection the weeks of Jan. 23-28 and Feb. 6-10.

Nov. 1, 2005- Inspectors find three federal code violations, issue no citations

An airborne radiation sampler was not sampling correctly, NRC inspectors discovered during an integrated inspection of the Peach Bottom Atomic Power Station.

The inspection, which was completed Sept. 30, turned up three issues, none of which resulted in a citation.

The radioiodine and particulate sampler is required to be in one of the highest annual average ground level D/Q areas. The report also said that Exelon had failed to conduct vegetation or milk sampling of highest calculated annual average ground level D/Q at the nearest offsite garden. The report did not explain what "D/Q" was an abbreviation for.

The report said the failure could affect "protection of public health and safety from exposure to radioactive materials released into the public domain." However, the finding was considered of "very low safety significance" because "calculations of public dose commitments did not identify any significant public dose or environmental impacts."

NRC inspectors also found that emergency workers required to use respiratory equipment had not maintained their qualifications. The violation affects readiness, the report stated, which in turn could put public health and safety at risk in a radiological emergency. The matter was deemed of "very low safety significance." Owner Exelon was not cited.

Exelon was not cited, either, after its Peach Bottom staff failed to "implement established procedures adherence standards during recovery from an aborted routine test." Operators did not perform the appropriate portions of the restoration section, did not initiate a temporary procedure change, and did not seek technical support after receiving an unexpected test result, according to the report. The error contributed to a reactor trip, but

did not result in a citation because the error did not increase the likelihood of equipment or functions being unavailable, the NRC report stated.

-Report by Marlene Lang

Jan. 22, 2006- Fire watch technician pleads guilty to falsifying records

A contracted employee at the Peach Bottom Atomic Power Station pleaded guilty Jan. 9 to the falsification of records used to safely operate the dual-reactor nuclear power plant. Between Jan. 17, 2005, and March 20, 2005, Tracy David, formerly of Bartlett Service Inc., failed to conduct hourly fire watch inspections in multiple sections of the plant including the emergency diesel generator room and the cable spreading room. Contacted by telephone, David - a resident of Quarryville, Pa., according to court documents - declined to be interviewed for this story. Based in Plymouth, Mass., Bartlett Services is a subcontractor for the Peach Bottom Atomic Power Station. On 199 occasions, David claimed that she had completed her rounds of fire watch inspections while on duty at the plant, said Neil Sheehan, spokesman for the U.S. Nuclear Regulatory Commission. Last year, both the NRC and plant officials ran independent investigations that uncovered evidence that showed that David had falsified her fire watch inspections and had not completed her rounds. When interviewed by representatives of the NRC's Office of Investigations, David commented that one reason for her accused offense was that she had been disgruntled after being passed over for a promotion, Sheehan said. "There were a significant number of fire watches that were missed," he said. "But (the plant) still had fire suppression systems in place." Regardless of the seriousness of the charges, the commission found that the safety significance was low since no fires were reported and each room on David's route was equipped with automatic fire-detection systems, Sheehan said. A fire watch technician walks a predetermined route, checking sections of the plant for smoke or other signs of fire, said Paul Gunter, director of the reactor watchdog project for the Nuclear Information and Resource Service. The technician keeps records of hourly checks to ensure that each room has been monitored at a particular time. "The job is pretty monotonous," said April Schilpp, a spokeswoman for the plant. Gunter said his organization has tracked fire protection violations at nuclear power plants since the early 1990s. For many years, Gunter's group has argued for improved fire barriers and other systems rather than rely on fire watches. "(Plants) should put in adequate fire protection features," he said. "You put humans into the picture, there will be an error. Especially with roving fire watches." The manual fire watch checks serve as a compensatory measure as ordered by the NRC. The commission requires that fire watches be conducted for any room inside a plant that has its fire detectors on automatic but its fire suppression system on manual. At times, a plant may switch its fire suppression equipment to manual if the system proves too sensitive, Sheehan said. Should a fire watch patrol worker spot signs of smoke, the worker would immediately notify the on-site firefighting brigade, he said. "It is a very important function," Sheehan said. Along her route, David's duty's took her to the plant's cable spreading room and to the emergency diesel generator room - the site of a small June 2003 fire.

Peach Bottom Atomic Power Station is equipped with four emergency diesel generators that kick on when the plant loses

power.

The generators serve as a source of backup energy. They power the plant's vital equipment including systems used to safely shut down the power station, Sheehan said.

In June 2003, NRC inspectors found that plant technicians had not adequately tightened the engine top cover flange joint bolts of an emergency diesel generator during a maintenance procedure. As a result, lube oil leaked from the joint and caused a small fire on the exhaust manifold during a test.

While no fires occurred during David's shifts, an internal investigation carried out by Peach Bottom Atomic Power Station officials did raise eyebrows concerning David's actions while on the job.

In February, while on duty, David's personal dosimeter sounded when it should not have gone off, Schilpp said. Typically worn around the neck, a dosimeter is a pager-sized piece of equipment that measures and detects radiation.

As part of the plant procedure, when a worker's dosimeter sounds, that person must leave the room and locate a plant technician, Schilpp said.

A quick check found that David had come from an area of the plant that was not part of her route, Schilpp said.

"She was not supposed to anywhere near that area," Schilpp said. "At that point, (the plant) started to question other things."

As part of the investigation, plant officials checked previous dosimeter readings and found that, in some cases, David's scans did not match what they should have been for her predetermined route.

Plant investigators tracked David by her badge, which is needed as a key to enter specific areas of the site.

"The evidence was overwhelming that things were not going right," Schilpp said. "We saw a pattern emerge."

At the onset of its own investigation, the plant alerted the NRC to the situation, she said.

"We self-identified the problem," Schilpp said. "We want people to be doing the things we ask them to do and to fulfill the obligations of our license."

Site officials confronted David with their evidence and conducted an interview to make sure the plant had not been deficient in explaining to the contracted employee what her job had entailed.

"She told us that she fully understood the job," Schilpp said, adding, "We don't want this to happen again."

Peach Bottom notified Bartlett Services that David had not been doing her job as assigned and had falsified fire watch

records.

Bartlett Services removed David from her fire watch position at Peach Bottom Atomic Power Station in late March. On April 15, the NRC opened its own investigation.

Since the commission is not a legal or judicial agency, the NRC notified the U.S. Department of Justice of its investigation. The Department of Justice, in turn, accepted the case for potential action.

"If we have findings of a criminal or deliberate nature," Sheehan said, "we refer those to the (U.S. Department of Justice)."

At the guilty plea proceedings held earlier this month, David acknowledged that she had falsified her fire watch records, said Martin Carlson, the assistant U.S. attorney assigned to the case. A sentencing date for David has not yet been set.

-Report by Sean Adkins of the York Daily Record/Sunday News

Jan. 25, 2006- An integrated inspection of Exelon Nuclear's Peach Bottom Atomic Power Plant documented two violations, neither of which resulted in citation of Exelon by the Nuclear Regulatory Commission.

In a failure to follow procedures, plant operators on Sept. 19, 2005, entered the Unit 3 reactor's drywell after a reactor shutdown but did not, before entering, collect and analyze a radiation sample for airborne particulate and iodine, as required by code.

The failure could have resulted in worker radiation exposure at unsafe dose levels, the report said.

Because the two individuals who entered did not sustain any significant dose, no citation was made and the finding was labeled Green.

Nor was a citation made when NRC inspectors discovered that following a valve replacement, high pressure service water (HPWS) was not adequately tested. The report stated that "The post-maintenance test did not account for the known degraded condition of the 3B residual heat removal heat exchanger HPSW outlet throttle valve. Improper test control on two occasions did not identify that high pressure service water flow through the section was below the established "design basis" flow.

The finding was categorized as Green, the report explained, because it did not result in a loss of function.

-Report by Marlene Lang

Feb. 10, 2006 - Fire inspection finds nothing significant

A fire protection inspection of the Peach Bottom Atomic Power Station resulted in "no significant findings" by federal inspectors.

A report on the inspection, from the Nuclear Regulatory Commission, dated March 9, 2006, stated that the purpose of the triennial fire protection inspection was to assess whether Peach Bottom owner Exelon had implemented and adequate fire protection

program and that "post-fire safe shutdown capabilities have been established and are being properly maintained."

-Report by Marlene Lang

Feb. 19, 2006- Peach Bottom reactor operating after shut down

The operators of Three Mile Island, Peach Bottom and Limerick nuclear power plants are checking their systems for leaks of water laced with tritium, a radioactive isotope linked to cancer.

Chicago-based Exelon Energy Co., which owns the plants, ordered the inspections after water contaminated with tritium was found in the groundwater or in test wells at three of its plants in Illinois. Exelon owns 10 nuclear plants.

The company ordered each plant to conduct inspections of systems that carry tritium-laced water. The inspections will include pipes, pumps, valves, tanks and other equipment, said Ralph DeSantis, a spokesman for AmerGen Energy, the operator of TMI and a subsidiary of Exelon.

Tritium, a radioactive isotope of hydrogen, is a byproduct of the nuclear reaction. In large doses, it has been linked to cancer.

"Our purpose is to ensure that we have a full understanding of the health of our systems that handle tritium and that we have satisfied ourselves ... that our equipment has a high degree of integrity," said Charles Pardee, Exelon's nuclear chief operating officer.

TMI officials have been monitoring tritium since shortly after the 1979 accident that destroyed the Unit 2 reactor. About a dozen monitoring wells are checked at TMI quarterly, DeSantis said.

Higher-than-usual tritium levels were found in a test well at TMI last fall, said David Allard, the director of the state Department of Environmental Protection's Radiation Control Program. The amounts never exceeded 19,000 picocuries per liter of water. The U.S. Environmental Protection Agency allows up to 20,000 picocuries per liter in drinking water. There is no standard for groundwater.

The leak was traced to a sump pump and corrected, Allard said.

Tritium-laced water is routinely released into the Susquehanna River by TMI, where it is diluted.

The DEP monitors the river at Steelton and Columbia. "I'd be very surprised if we ever saw any tritium," Allard said.

Eric Epstein, the chairman of the watchdog group Three Mile Island Alert, called on Exelon to be more aggressive with its well testing.

The EPA describes tritium as one of the least dangerous radioactive substances because it emits weak radiation and usually leaves the body within a month.

-Report by Garry Lenton of the Patriot-News

Feb. 27, 2006 -Fire cause power reduction, 'no threat'

A electrical fire occurred at Peach Bottom's Unit 3 transformer, forcing the plant to reduce power to 50 percent.

Exelon and government officials said the fire posed no threat to the public, as it happened in a non-nuclear area of the plant, shortly after 9 a.m. It was extinguished by 10:32 a.m., officials said.

The fire was traced to a transformer cabinet in the turbine building of the Unit 3 reactor, said April Schlipp, spokeswoman for the plant's owner, Exelon Nuclear.

-Report by Garry Lenton

Feb. 28, 2006 - NRC examining 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 room operators 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 2, 2006- NRC notes three shutdowns of Unit 2

Peach Bottom's annual assessment of its nuclear reactors noted that the Atomic Power Station's Unit 2 reactor was shut down three times in 12 quarters, "with a loss of normal heat removal," a rate which resulted in a "White" level performance indicator. White is the second least significant, just above Green.

-Report by Marlene Lang

March 15, 2006 -NRC responds: Incidents unrelated

The NRC's Senior Allegation Coordinator responded to TMIA's Eric Epstein, in a letter, saying that two incidents of workers falsifying records at the Peach Bottom plant were unrelated and did not represent a pervasive problem.

One incident involved a fire-watch report in January 2006. Another, in October 2001, involved falsification of maintenance tests on sirens.

-Report by Marlene Lang

May 3, 2006 - Nuclear Regulatory Commission inspectors found Peach Bottom was not adequately testing its E-2 emergency diesel generator (EDG) air coolant auxiliary pump following shaft packing replacement, according to a report on an inspection completed March 31, 2006.

A post-maintenance test did not account for the higher pressure that occurs in the EDG cooling subsystem when the EDG is operating and the cooling system is pressurized by the attached cooling pump, the NRC report explained. Ten gallons of water leaked on the floor in the area of the EDG, as a result, and the leak occurred over a 22-hour period on Dec. 27 and 28, 2005.

The report further stated that personnel had "an inadequate understanding of the air coolant auxiliary pump design and the pump's interrelation with the EDG operation," though the information was available to the testers.

The finding was labeled Green and owner Exelon was not cited, though a plan was made to correct the problem, the report said.

Inspectors also reviewed an event that happened on Jan. 1, 2006, in which a Unit 2 reactor control rod drive (CRD) system flow transmitter failed by "drifting low." This resulted in an increased control rod drive flow as the flow control valve opened in an attempt to compensate for the low flow in the CRD system and according to the report, the condition was not immediately identified. Core thermal power increased and operators reduced power while the situation was evaluated. It turned out that the system was not at overpower condition.

Also noted in the report, on Feb 13, 2006, operators forgot to complete required technical specification tests after a slow start of an emergency diesel generator. They remember three hours later to do the tests, the report stated.

None of the incidents resulted in citations, as they were considered of low safety significance.

-Report by Marlene Lang

May 12, 2006 - The NRC evaluated Emergency Preparedness exercises held April 25 at Peach Bottom's Unit 2 and Unit 3, reporting no findings of significance.

May 17, 2006- After employee falsified records, plant stays in compliance, with firing

The federal Nuclear Regulatory Commission gave its lowest form of enforcement notice to the nuclear power plant in Peach Bottom Township after an investigation into falsified plant records.

Peach Bottom Atomic Power Station sidestepped a more severe infraction from the regulatory agency by identifying and immediately acting on the violation by a contracted employee, the federal commission said in a letter dated May 12.

As part of a backup verification to its fire safety system, Exelon Corp. contracts with Bartlett Service of Massachusetts to enter certain rooms and verify there is no fire or risk of a fire.

Between January and March of 2005, Exelon determined an employee of Bartlett – whom the commission did not name – falsified records on the fire watch logs on almost 200 occasions.

When Exelon realized what had happened, the employee was fired, and the company started its own investigation, along with notifying the proper authorities of the violation.

In the letter to Exelon, the commission said it considered a more severe infraction, but settled on a "non-cited violation." As a result, the power plant must take corrective action to improve the fire watch performance and prevent the violation from happening again – which the commission noted Exelon had already done a year prior.

"You restored compliance immediately after identification of the violation by terminating the employee," the commission said in the letter, "and by conducting a prompt investigation to review the access records for other contractor fire watch staff that concluded that the individual's action was an isolated case."

The violation was classified at Severity Level IV, the lowest severity level. In comparison, commission spokeswoman Diane Screnci said a Severity Level III violation would have included the consideration of a fine.

Exelon agreed with the level of severity set by the commission, said April Schilpp, a spokeswoman for the Peach Bottom power plant.

-Report by Charles Schillinger of the York Dispatch

June 1, 2006- Inspection turns up one test issue

An NRC inspection completed on April 21, 2006 turned up one low-significance finding, according to a report released June 1.

Inspectors reported that Peach Bottom operators failed to ensure that test procedures for the high pressure coolant injection (HPCI) and the reactor core isolation cooling (RCIC) pump had acceptance criteria incorporating limits from design documents. Failing to stay within the limits for which the pump was designed could degrade the pump to a lower limit could interfere with proper flow and discharge pressure. The finding was not cited and a correction plan was made, the report stated.

-Report by Marlene Lang

June 30, 2006 - The NRC completed an integrated inspection of the Peach Bottom Atomic Power Station with four findings, all rated "Green," and all not cited.

One finding by inspectors involved barrier integrity, according to a report on the inspection, dated July 26, 2006.

Exelon was to compare task performance between its plants at Limerick and Peach Bottom, according to company procedures established in 1991, the report stated.

Inspectors found that three out of five job performance measures for Limerick Senior Reactor Operators who handled fuel differed significantly in the way they were performed. The NRC report said the differences should have been explored, but were not, and that the failure could have affected physical design barriers that protects the public from radionuclide releases. The finding was not cited.

In another Green finding, personnel failed to properly implement procedures for a high pressure coolant injection (HPCI) turbine exhaust drain piping.

This failure, the report explained, prevented an HPCI containment isolation valve closure on April 5, 2006. The matter was considered of very low safety significance because it did not represent an actual open pathway in the physical integrity of the barrier.

There was also a finding that affected emergency preparedness. Inspectors found a ready-for-use self-contained emergency apparatus in the main control room which had a partially separated regulator air diffuser. The finding was categorized as Green.

In a violation of NRC requirements that one residual heat removal (RHR) shutdown cooling system (for high water level) be operable and in operation during a shutdown, and this was not the case in instances in September 2002 and 2003. No citation was made as there were no actual safety consequences caused by the failure.

-Report by Marlene Lang

July 24, 2006 - NRC responds to fire watch concerns: There is no chronic problem

A Nuclear Regulatory Commission official responded to Eric Epstein's June 12, 2006 letter, in which Epstein ask whether the NRC believed there were a chronic problem at Peach Bottom regarding missed fire watches.

The NRC stated they did a historic review of missed fire watches at the plant and that no chronic problem was found.

Epstein was also told that there was no adverse issue with documentation falsification, after an inquiry.

Epstein asked about a matrix being used to reach these conclusions and the NRC stated it did not use a "matrix" but instead made inspections and reviews.

-Report by Marlene Lang

Aug. 16, 2006- 'Unusual Event' Declared, Terminated at Peach Bottom Plant in York County

Exelon Nuclear's Peach Bottom Atomic Power Station's fire brigade extinguished a small fire onsite yesterday after a backup emergency diesel generator's exhaust gasket on the roof of the diesel generator building unexpectedly caught fire.

The fire occurred during routine testing of one of the station's four diesel generators. The fire prompted the declaration of an Unusual Event at 6:14 p.m. Tuesday, in accordance with station procedures, due to a fire in the Protected Area that was not extinguished within 15 minutes. The fire was extinguished at 6:35, and the Event was terminated at 8:40 p.m. No offsite fire responders were needed to extinguish the fire.

There was no threat to the safe operation of the plant, and there was no danger to station personnel.

An Unusual Event is the lowest of four emergency classifications established by the U.S. Nuclear Regulatory Commission. There was no danger to the public during the event and no special action by the public was needed.

Exelon Nuclear notified all appropriate federal, state and local emergency response officials of the Unusual Event.

Oct. 11, 2006 -Reactor back in service

A nuclear power plant reactor in southern York County returned to service yesterday morning after a cracked pipe in the cooling system forced owner Exelon Nuclear to shut the reactor down Saturday night.

The shutdown was the second at the Peach Bottom Nuclear Station in 15 months and the third since 2003.

The reactor, which had been off line for three weeks for refueling and maintenance, was only two hours into its restart when an equipment operator noticed a leak in a pipe used to test the cooling system, said April Schilpp, spokeswoman for the plant.

-Report by Garry Lenton of the Patriot-News

Oct. 20, 2006 - Peach Bottom among nuclear power plants included in study

The Peach Bottom nuclear power plant in Pennsylvania and Seabrook Station in New Hampshire has been chosen as one of six nuclear power plants nationwide to be part of a study of the consequences of an accident that would release radioactivity into the atmosphere.

The other nuclear plants being reviewed are Diablo Canyon in California; Duane Arnold in Iowa; Fermi in Michigan; and Salem in New Jersey. The study is expected to take three years.

"The sites were picked based on the demographics of the surrounding communities and the type of containment used," said Scott Brunnell of the Nuclear Regulatory Commission.

The study will bring together information about how accidents could occur within containment buildings; how containment could be breached; how radioactive plumes could travel; and how effective emergency planning would be, Brunnell said.

Ultimately, the criteria developed as a result of this study would be applied to all U.S. nuclear power plants, Brunnell said.

Seabrook Station spokesman Alan Griffith said that all nuclear plants would eventually be reviewed. He said this is an effort on the part of the NRC to update its methodology.

"It will be beneficial to the community because the NRC will be taking a look at emergency planning," Griffith said. "Ultimately, it will be good for all of us."

-Report by the Portsmouth Herald

Feb. 5, 2007- Operators compensate for low system settings

An integrated inspection by the NRC found Peach Bottom workers failed to follow procedure for equipment evaluations involving pressure pulsations going into standby liquid control (SLC) systems in which relief valves were degraded.

According to a report, on Nov. 21, 2006, engineering personnel documented the incorrect setting of SLC pump relief valves. During the rebuild of Peach Bottom's Unit 3 on Nov. 1, 2004, an SLC pump discharge relief valve was incorrectly adjusted from its design setpoint. There were similar setting questions about Unit 2 and engineers determined that Units 2 and 3 SLC systems were degraded and set low, but still operable, with "two compensatory actions" to maintain pressure. The report noted the relief valves were scheduled to be replaced during each unit's next refueling outage.

The finding was considered of very low safety significance and was not cited.

-Report by Marlene Lang

Feb. 28, 2007- Power plant fire not a threat, officials say

An electrical fire at the Peach Bottom nuclear station in southern York County yesterday posed no threat to the plant's operating nuclear reactors, according to company and government officials.

The fire, discovered shortly after 9 a.m. in a non-nuclear area, was extinguished by 10:32 a.m. and there were no injuries, officials said.

The fire was traced to a transformer cabinet in the turbine building of the Unit 3 reactor, said April Schilpp, spokeswoman for the plant's owner, Exelon Nuclear. As a precaution, officials shut down the turbine and cut power to 50 percent.

Company officials were assessing the damages, but they were expected to be minor.

"It should not prevent the plant from operating normally," Schilpp said.

U.S. Nuclear Regulatory Commission spokeswoman Diane Screnci said the plant was stable and that its inspectors were in the plant control room monitoring the situation.

The fire is the ninth at Peach Bottom since 1986, and the second in the Unit-3 turbine buildings, according to a chronology put together by the watchdog group Three Mile Island Alert using NRC documents.

The most recent was a small fire in an emergency backup diesel generator in August, 2004.

"Fires at nuclear power plants are never a welcome development," said TMIA Chairman Eric Epstein. "Older plants with aging parts, like Peach Bottom, require heightened vigilance. The root cause needs to be identified and defeated."

-Report by Garry Lenton of the Patriot-News

March 17, 2007- Fire was electrical

The Pennsylvania Department of Natural Resources reported that it was a breaker that caught on fire at the Peach Bottom plant in February. A spokesman said the fire was electrical in nature.

"They replaced the breaker and verified proper connections and amperages to prevent a recurrence. I have not yet seen the utility's root cause evaluation, but Dennis Dyckman of my staff is following up on this with the plant," according to Rich Janati, of the DEP.

March 20, 2007- A former security manager for Wackenhut Coporation reportedly sent a letter to the Project on Government Oversight, who passed it on the the Office of the Inspector General on March 27. The writer of the letter claimed that Peach Bottom security officers were fatigued from working excessive overtime or 12-hour shifts and would cover for each other so they could take naps of 10 minutes or more during shifts. According to an NRC memo released Aug. 22, 2008, the letter also indicate the past efforts by the NRC to identify personnel sleeping on duty had failed, and alleged that NRC and Exelon were aware that officers were sleeping while on duty, and said security officers feared retaliation for raising safety concerns.

The memo stated the letter was provided to the Nuclear Regulatory Commission resident inspector at Peach Bottom in March 2007, and that at that time the concerns it relayed were evaluated under the NRC allegation program by the NRC's Region I office, which oversees Peach Bottom.

In August 2007, Region I concluded the concerns were not substantiated and the allegation filed was closed, according to an NRC document.

-Report by Marlene Lang

2007

March 2007- John Jasinski sends the Nuclear Regulatory Commission a letter alleging guards are sleeping throughout the nuclear plant in York County, Pa. The NRC refers the concern to plant owner Exelon and security provider Wackenhut.

March 13, 2007- NRC: 2002 miscue accidental

In 2002, a plant security officer falsified fire watch logs at Peach Bottom Atomic Power Station.

A contracted security officer at Peach Bottom Atomic Power Station - who logged a fire watch he didn't actually perform - did not willfully falsify fire watch records, according to a U.S. Nuclear Regulatory Commission investigation.

In April 2002, a Wackenhut contract security officer did not conduct a required fire watch but indicated on a log sheet that the action had been completed, according to NRC Office of Investigations records.

While investigating an unrelated matter in July 2006, commission investigators learned about the 2002 missed fire watch, said Neil Sheehan, a commission spokesman.

Investigators discovered that the officer believed his missed fire watch would be conducted by another officer during a scheduled tour of that same area. However, the second officer was assigned to cover the area once every four hours and not every hour as required to cover fire watches.

April 11, 2007 -Security guards to receive back wages

The Miami-based company that employs guards at Peach Bottom Atomic Power Station has agreed to pay \$129,953 in back wages to 157 workers at the nuclear-powered plant. A U.S. Department of Labor's Wages and Hour Division investigation found that Wackenhut Corp. paid guards their regular rates of pay regardless of how many hours they worked.

A federal act states that employees must be paid time and a half should they work more than 40 hours per week.

In the case of Wackenhut Corp., the company required security guards to arm themselves prior to the start of their shift, said Leni Uddyback-Forston, a spokeswoman for the U.S. Department of Labor. "The arming-up process could take five to 15 minutes per employee each day" she said. "They were not being compensated for that time."

Also, regular changes to Wackenhut's work schedule resulted in some guards being paid for four hours at their regular rate instead of overtime pay, Uddyback-Forston said.

Wackenhut officers guard both Three Mile Island in Dauphin County and Peach Bottom Atomic Power Station.

A representative from Wackenhut Nuclear Services said he could not comment on the reimbursement of the Peach Bottom Atomic Power Station guards.

Wackenhut has paid more than 90 percent of the back wages owed, Uddyback-Forston said.

The company is in the process of reimbursing the remaining 26 of 157 guards affected, she said.

-Report by Sean Adkins of the York Dispatch

April 19, 2007- Plant owners request 'reduction' to code

Exelon Generation Company and AmerGen Energy Company asked the Nuclear Regulatory Commission for approval of a change to the required Quality Assurance

Topical Report, required under federal code. The companies explained the requested changes to the fire protection program represents a "reduction in commitment." The NRC said it would need more information to complete a review of the request. Federal code requires the NRC Safety Review Committee to inspect and audit the fire protection program, and the NRC asked the companies to describe how the topical report in question "establishes a requirement for the inspection and audit of the fire protection program." Twelve nuclear power plants would be included in the requested code change.
-Marlene Lang

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

April 30, 2007- NRC calls fudged fire checks "minor"

The NRC wrote Peach Bottom to report on an investigation of Jan. 19, 2006 incident in which an employer deliberately did not make the fire protection surveillance rounds required, and falsified reports to say the checks were made.

The NRC told Peach Bottom owner Exelon, "Because you are responsible for the actions of your employees, and because the violation was willful, the violation was evaluated under the NRC ... process. The NRC considered that the violation, absent willfulness, would be of minor safety significance because the fire safety equipment was maintained in a functional condition."

The report went on to say: "However, the NRC escalated the severity level of Severity Level IV because the violation was a deliberate act."

-Report by Marlene Lang

May 3, 2007 -NRC alerts power plants of fires

Operators told to review fire protection plans

The Nuclear Regulatory Commission informed power plant operators of two fire incidents, and their causes.

On Aug. 15, 2006, at the Peach Bottom Atomic Power Station, combustible, improperly installed roofing materials on an emergency diesel generator caught fire where it came into contact with a steel penetration sleeve which the generator's exhaust passes through. According to a letter from the NRC to nuclear plant operators, the fire smoldered for about 35 minutes, from the time it was fire identified until it was put out by the plant's in-house fire brigade.

Peach Bottom found that some of the roofing materials were improperly installed back in 1997-98, and were abutting the steel sleeve. The report explained that during an extended

run of the emergency generator the steel sleeve "heated to the point that it caused the adjacent roofing materials to ignite." The exhaust stack operates at about 900 degrees Fahrenheit, but asphalt roofing paper burns at about 400 degrees.

Another fire occurred Aug. 18, 2006 at the Beaver Valley Power Station, Unit 1 reactor, during ventilation duct installation, through a concrete wall which served as a contamination barrier. A worker had stuffed combustible cotton rags around the venting, and sealed it with duct tape. When welding began, heat transfer through a metal sleeve box ignited the duct tape and rags.

According to the NRC report, the burning rags and melting plastic fell through the concrete wall opening into the cable vault. Drops of hot burning plastic fell into conduit-protected cables.

There was no continuous fire watch on the cable vault side of the fire barrier, but smoke from the burning plastic activated a smoke detector. The fire burned about six minutes, and was put out by hand, by a worker, the report said.

Nuclear power plants were told to review their fire protection plans with this information in mind. No specific requirements were made, or specific actions required of plants.

May 8, 2007 - Worker faking records was isolated case

Peach Bottom Atomic Power Station has not been cited even though a plant worker falsified records on two occasions, according to the U.S. Nuclear Regulatory Commission.

An NRC investigation substantiated that a low-level worker deliberately falsified fire-protection-surveillance records without the knowledge of plant management, according to an NRC document dated April 30.

Plant officials ran an investigation into the matter and fired the worker, the document states.

Exelon Nuclear checked the records of other operators to determine if anyone else was involved in the falsification of the records. The commission determined that the violation resulted from the isolated actions of one worker.

-Report by Sean Adkins of the York Dispatch

May 15, 2007- NRC finds partial-flow line under full-line use

Peach Bottom Atomic Power Station credited individuals with performing the functions of a "senior operator" who were not actually senior operators (SOs). Technical specifications and federal code require a certain number of hours and functions to be done by SOs. NRC inspectors discovered that another classification of worker was performing tasks which SOs were to be doing, as required under the plant's license.

The finding was classified as Green, with "very low safety significance." Owner Exelon was not cited, according to the NRC report of an inspection that ended March 31, 2007. The report also noted that a partial-flow flush line (part of a high pressure coolant injection (HPCI)/reactor core cooling line), was being used for full-flow testing. The use,

for which the line was not designed, resulted in cracked piping to the torus, which had to be replaced, according to the NRC report.

The finding was called "more than minor" and the report said the issue had been complex to evaluate. The matter was given Green categorization as "the probability of a large early release remained low."

Inspectors also found that procedures for effluent monitoring were inadequately established and maintained. Procedures were not adequate to detect "non-representative sampling of the 'B' train of the main stack particulate effluents sampling system."

The finding potentially affects public health and safety, but was considered of very low safety significance because it did not involve radioactive material. The NRC report also noted that personnel were not trained properly in the procedures.

None of the violations were cited, according to the NRC.

-Report by Marlene Lang

June 26, 2007 -NRC finds 2 violations, untimely corrections, makes no citations

An NRC inspection completed on April 21, 2006 reported that in March 2006 Peach Bottom operators failed to ensure that test procedures for the high pressure coolant injection (HPCI) and the reactor core isolation cooling (RCIC) pump had acceptance criteria incorporating limits from design documents. Failing to stay within the limits for which the pump was designed could degrade the pump to a lower limit could interfere with proper flow and discharge pressure. The subsequent inspection, completed May 18, 2007, found that the March 2006 problem was not corrected.

The NRC inspectors reported that Peach Bottom owner Exelon had not revised the procedure "and had continued to conduct the surveillance test 13 times since the issue was discovered by the NRC."

An Exelon evaluation found the pumps currently met the design basis requirements and were operable, according to the report. "Exelon failed to take prompt corrective actions to address a safety issue in a timely manner," commensurate with safety significance and complexity," the report stated.

The matter did not result in citation because it did not represent a loss of system safety function.

A second violation also did not receive citation. Peach Bottom failed to correct a condition deemed "adverse to quality" for 22 months. The condition was associated with pressure boundary leakage, the NRC report explained. In July 2005 the NRC noted the plant had not promptly evaluated a steam leak on a high pressure coolant injection valve. The NRC report said Exelon "did not take corrective actions to address a safety issue in a timely manner."

July 30, 2007 -Inspection notes failures to follow procedures

The NRC followed up on a fire and other problems at the Peach Bottom Atomic Power Station in a three-month inspection that ended June 30.

No citations were made for three incidents, two of which involved violations of NRC requirements, according to the Nuclear Regulatory Commission report.

An incorrect size matchup on a breaker caused a fire at the '4T4' 480 volt load center, NRC inspectors explained in a report that followed up on the "Unusual Event."

The February 2007 fire was a result of human error, according to the report, which explained that "an incorrect frame size breaker was installed into a cubicle for which it was not sized. This mismatch caused an electrical fault that led to a fire and a plant transient that upset plant stability." Operators responded to the fire and "equipment losses" by cutting reactor power to half its normal rate.

NRC inspectors determined the "root cause" of the fire to be "that standards, policies, and administrative controls were not used." Maintenance technicians did not strictly follow instructions to verify the frame size during the overhaul of a spare breaker.

The finding was labeled Green and "of very low safety significance" because it did not increase the likelihood of a plant shutdown or the likelihood that mitigation equipment functions would not be available.

The report also noted that a missed procedure step in a surveillance test resulted in an unplanned overloading of an emergency diesel generator on March 15, 2007. This also was due to human error, according to the NRC report, which explained that workers did not follow procedure when the overload happened.

Other emergency generators remained operable. The generator that was overloading was out of service for less than the specified outage time allowed, of seven days. The finding was labeled Green and Exelon was not cited.

In a third Green finding, the NRC said operators failed to follow procedures while manipulating a diesel-driven fire pump cooling water valve on May 23, 2007. The improper manipulation led to misalignment of the fire pump cooling water that subsequently damaged the entire engine during operations without cooling water, the report explained. The fire pump was rendered inoperable by the damage to the engine. The report said operators were not provided complete and accurate instruction for cleaning the cooling water strainer, which contributed to the situation. The finding was considered of very low safety significance.

Exelon was not cited.

-Report by Marlene Lang

Aug. 31, 2007 -Performance review by NRC give good marks

The Nuclear Regulatory Commission announced the completion of its performance review of the Peach Bottom Atomic Power Station for the first half of 2007. The report said the plant operated in such a way as not to require any additional NRC oversight beyond the regularly scheduled inspections. Those inspections were outlined in the letter to Exelon president Christopher Crane.

-Report by Marlene Lang

August 2007- File closed on allegation

NRC's Region I office which oversees Peach Bottom closed the file on the allegations made in a letter by a Wackenhut Corp. supervisor that security officers were working too long and taking naps on duty, saying the accusation was unsubstantiated.

-Report by Marlene Lang

September 2007 -News station WCBS in New York provided the NRC Region I office with a videotape that depicted inattentive security officers on duty at the Peach Bottom Atomic Power Station. "The videotape was broadcast on national television and resulted in considerable congressional and public concern," an NRC memo noted in Aug. 2008.

Baltimore Examiner summary of Peach Bottom sleeping guards incidents

March: John Jasinski sends the Nuclear Regulatory Commission a letter alleging guards are sleeping throughout the nuclear plant in York County, Pa. The NRC refers the concern to plant owner Exelon and security provider Wackenhut.

Sept. 10, 2007- WCBS in New York informs the NRC that it has a videotape of guards asleep or nodding off in a "ready room" near the nuclear reactor.

Sept. 21, 2007- An NRC inspection confirms only the 10 guards caught on tape were sleeping — only one of four shifts is implicated.

Nov. 1, 2007- Exelon terminates its contract with Wackenhut and takes over the plant's security. Whistle-blower Kerry Beal, on leave during the investigation, is not among the Wackenhut guards rehired by Exelon.

Nov. 5, 2007- NRC inspectors follow up at Peach Bottom to ensure Exelon is correcting the problem.

December 2007-2008: NRC pledges to monitor Peach Bottom.

Baltimore Examiner, December 12, 2007

Nov. 28, 2007 -Security issues prompt more inspections for Peach Bottom

Between March and August of 2007, Kerry Beal videotaped 10 of his fellow Wackenhut Corp. officers at the Peach Bottom plant napping in a secure location of the plant while on the job.

Beal reportedly tried to report the incidents within his chain of command on duty, but then turned the tape over to WCBS news in New York.

The incident prompted Exelon to fire Wackenhut from serving at the Peach Bottom plant. Exelon will conduct more inspections and is reviewing whether to continue contracts with Wackenhut for security at Exelon's other nine nuclear power plants.

An NRC investigation also found officers has slept on duty at least four times between February and August 2007. However, the NRC determined that the plant's security program was not significantly degraded as a resulted.

Increased NRC inspections will review the plant's transition to an in-house security force.

-Report by Garry Lenton of the Patriot News

Feb. 5, 2008- Peach Bottom plant repairs safety valve

Peach Bottom Atomic Power Station operators shut down Unit 3 this morning to repair a safety valve.

The valve prevents steam lines to the electric turbine from becoming over-pressurized, said Bernadette Lauer, power station spokeswoman.

In a release, Lauer said the plant's operators are investigating the cause of the equipment malfunction. There was no risk to the public, she said.

Unit 2 continues to operate at full power. Units 2 and 3 are boiling water reactors, and Unit 2 is capable of generating approximately 1,138 net megawatts and Unit 3 is capable of generating approximately 1,140 net megawatts.

-Report by York Daily Record/Sunday News

Feb. 8, 2008 -Peach Bottom Atomic Power Station's Unit 3 reactor came back online at 3:30 p.m. Thursday after workers had replaced a safety relief valve that had malfunctioned earlier this week.

Peach Bottom's Unit 2 reactor continued to operate at full power without interruption during the Unit 3 shutdown.

-Report by Sean Adkins of the York Dispatch

Feb. 14, 2008- Inspection finds one violation

An integrated inspection by the NRC found one violation deemed of low safety significance at the Peach Bottom Atomic Power Station, according to a report by the Nuclear Regulatory Commission. Exelon was not cited for the "failure to include the reactor building equipment and floor drain plugs in the scope of the Maintenance Rule program." Because of this, the station "did not recognize that appropriate preventive maintenance was not being performed," the report stated.

Inspectors noted that the finding indicated a failure of problem identification and resolution, because the procedures did not contain lessons learned from a similar event in February 2007.

-Report by Marlene Lang

March 3, 2008 -Annual Assessment calls for heightened oversight of guards, security

The NRC has called for "additional regulatory oversight" of Peach Bottom's performance, as a result of security officer inattentiveness revealed in the last quarter of 2007. The inspection covered all of 2007 and the plant was found to have performed satisfactorily in areas related to reactor and radiation safety.

However, enhanced oversight will include additional inspections in the areas of security force performance monitoring, corrective actions, safety conscious work environment (SCWE) and completion of commitments.

The Nuclear Regulatory Commission's report on the annual inspection told Exelon that "behaviors and interactions within the security organization did not encourage the free flow of information related to raising safety issues."

This presumably was a reference to media reports that the Wackenhut Corp. security officer who videotaped his fellow officers sleeping on the job, claimed he had tried to report the problem within the work environment and was met with no action, before he gave the recording to local media.

The plant receive a White rating for the violations.

-Report by Marlene Lang

Here is a brief recount of the events which led to the heightened oversight:

December 2007-2008: NRC pledges to monitor Peach Bottom.

Baltimore Examiner, December 12, 2007

April 9, 2008- NRC announcing meeting with Exelon over safety issues

Officials of the Nuclear Regulatory Commission will meet with Exelon Generation Co. representatives to discuss the results of an NRC inspection that focused on "safety conscious work environment" (SCWE). The inspection and the meeting are in response to incidents related to Wackenhut Corp. security officers who were found sleeping on the job and the related issue of why incidents were not reported before a worker took a videotape to the media. Wackenhut has provided security guards on a contract basis to several of Exelon's plants, but since the incident, Peach Bottom and others have turned to in-house security.

The NRC requires that license holders, like Exelon, "maintain an environment in which safety issues are promptly identified and effectively resolved and employees feel free to raise safety concerns," according to an NRC announcement of the April 15 meeting.

In another NRC press release the same day, the agency proposed a \$130,000 civil penalty against a nuclear power plant in Florida, 30 miles south of Miami, after a 2006 investigation found Wackenhut-employed security officers there sleeping on duty over a period of two years. The release said that on April 6, 2006, a security officer was seen by an NRC inspector sleeping while on duty at a post in a vital area of the reactor.

-Report by Marlene Lang

May 6, 2008- Fire brigade 'deficient'

An integrated inspection of the Peach Bottom Atomic Power Station by the NRC ended March 31, 2008 and resulted in one "more than minor" finding that was not cited.

According to the report, numerous fire brigade deficiencies were not discussed at a post-drill critique or documented in a fire drill record, resulting in fire brigade deficiencies.

Among the undocumented deficiencies: the brigade opened a hot door to a fire area with no protective equipment on; the supervisor gave orders to sway, rather than shut down, lubricating oil pumps during the fire, failing to take the most conservative action as required. This failure went unrecognized by other team members and evaluators. Also, the fire brigade was not aware of the status of the sprinkler system, to ensure that it was

actuated, and the team failed to set the ventilation system to remove smoke from the room, until prompted by the drill instructor.

The crew with observed "deficiencies" was one of five on site, and the only one with problems.

The violation was not cited.

-Report by Marlene Lang

May 9, 2008- Emergency exercises assessed, need improvement: FEMA

A regional administrator for FEMA informed Maryland's Director of Emergency Management that the Federal Emergency Management Agency (FEMA) and the Department of Homeland Security held radiological emergency preparedness exercised at Peach Bottom Atomic Power Station on April 22, 2008 and that four deficiencies occurred during the exercises.

One deficiency was that Harford County, Md., emergency operations were not coordinated with other jurisdictions and were not preceded by siren activation.

There were similar coordination problems with Cecil County, Md., where problems arose related to communication with media during an emergency. Maryland municipalities participate in the exercises because of their proximity to the Peach Bottom plant in southern York County, Pa.

-Report by Marlene Lang

May 21, 2008- Inspectors: Required battery test was not being performed

In an NRC Component Design Bases inspection completed April 11, 2008, one violation was identified at the Peach Bottom Atomic Power Station.

According to the NRC's report, Exelon, owner of Peach Bottom, did not verify that certain battery connection resistances were within the limits of technical specifications.

The report stated that Exelon had exempted the inter-tier connections (those between cells using cables vise steel bars) from the testing requirement. When Exelon did perform the exempted test, it was discovered that one of four cables on a Unit 2 battery was about the specified limit.

An evaluation of the violation showed the degraded connection would not have prevented the battery from fulfilling its safety function, the report stated.

Because safety function was not lost, the finding was given a Green rating and was not cited.

-Report by Marlene Lang

May 27, 2008- Work environment study complete

After heightened oversight and additional inspections following incidents of sleeping guard, the NRC reported on its inspection of 'safety conscious work environment,' (SCWE). Exelon was to resolve work environment issues related to inattentive security guard issue identified in Sept. 2007.

According to the NRC report on the special inspection, 150 employees of the Peach Bottom plant participated in discussions on work environment issues. Inspectors determined that the SCWE survey was conducted in a manner that encouraged candid and honest responses and that survey results compared "favorably with industry norms." Exelon determined that there were some negative perceptions of the Employee Concerns Program among workers, regard confidentiality and effectiveness.

There were also perceptions of inconsistent standards and direction during refueling outages, and Exelon was to address this and other "perceptions" about adverse reaction for raising issues. During focus group meetings, inspectors could not find any instances where retaliation had happened as a result of someone raising safety issues, the report stated.

The report noted that Exelon had already begun the transition to an in-house security force.

The report said Exelon's self-assessment "resulted in a reasonably complete understanding of the SCWE" at Peach Bottom.

-Report by Marlene Lang

June 5, 2008- Radioactivity dose assessment not adequate, NRC says

Exelon violated federal code by not providing a means to continually assess the impact of the release of radioactive materials, in its 'dose assessment' program. According the a Nuclear Regulatory Commission report on an evaluation of an April 23 emergency preparedness exercise.

The assessment procedures and programs at the Peach Bottom plant limited assessment to only those conditions in which "the fuel clad barrier was lost or potentially lost," with instruction to operators telling them, in fact, not to take dose assessment protective action in cases where there was no loss or potential loss of the fuel clad. the report explained.

The report stated, The (NRC) inspectors observed during the April 23, 2008 exercise that before the fuel clad barrier had been declared potentially lost, a plant release was in progress while radiation readings in the Unit 2 drywell exceeded 600 rad/hour."

Inspectors noted that otherwise, assessments were being conducted as prescribed.

The finding was classified as Green and of very low safety significance and was not cited, the report stated.

-Report by Marlene Lang

June 25, 2008 -NRC inspectors found three violations of "very low safety significance" in a team inspection completed May 16 at Peach Bottom.

The findings were rated Green and Exelon was not cited. NRC documents specifying the nature of the violations were not available.

July 15, 2008- NRC checks on progress in sleeping guard remedies

The Nuclear Regulatory Commission continued its follow-up response to inattentive security officers and issues related to "safety conscious work environment" (SCWE) with an inspection at the Peach Bottom plant. The June 6, 2008 visit was to determine Exelon's progress in meeting the commitments it made to address the issues.

The inspection looked into the transition from a contracted to an in-house security force, a review of Peach Bottom's evaluation of the "root cause" of the problem and its effectiveness and an inspection of activities related to work environment issues (SCWE). The NRC reported that no findings of significance turned up in the inspection and all actions to which Peach Bottom committed were considered closed, with two exceptions. Exelon would have to perform safety conscious work environment surveys at its other plants, and those survey results would have to be discussed. It also remains for Exelon to submit written confirmation that all items have been completed.

-Report by Marlene Lang

Aug. 12, 2008 -Material found in sprinkler system valve

An integrated inspection of Peach Bottom Atomic Power Station completed on June 30, 2008 by the NRC noted only one finding of "very low safety significance."

The Green level finding was made by maintenance personnel who discovered foreign material inside a supply valve to an automatic 13KV switchgear sprinkler system. The system is important to the plant's fire protection program. The material was removed. Exelon was not cited.

-Report by Marlene Lang

Aug. 22, 2008- Regional NRC office under review for response to sleeping guards
Office of Inspector General find Region I assessment 'inconsistent'

The NRC Office of the Inspector General reviewed whether its Region I office responded adequately in handling the letter it received in March 2007 alleging security officers were sleeping on the job at Peach Bottom, and concluded the Region I office was inconsistent in its response.

(For background, see Chronology entries beginning March 20, 2007.)

According to a memo from the Inspector General to the Region I office of the NRC, the regional staff received the letter on March 27 and held a board meeting to evaluate it on March 29 and again on April 11, 2007. Prior to the two board meetings, an NRC engineer had been assigned to check out the relevant history of allegations at Peach Bottom. The engineer returned an e-mail report on March 28, stating there had been three previous allegations in 2005 related to Peach Bottom security; one about overtime and fatigue, one concerning retaliation against security officers and one allegation of security officers sleeping in the towers.

None of the allegations were substantiated, the engineer reported, also noting that there were some inconsistencies in the stories of the sleeping officers because it would be impossible to observe anyone sleeping inside the towers from outside.

The review also discussed an interview the Inspector General's office made of the Wackenhut security manager who made the original report of the inattentiveness. That manager said there was a fear of retaliation among guards, and said he had reported that fear to Exelon and Wackenhut. He also said he told Exelon that conditions in the "ready room" at the Peach Bottom plant were "not conducive to remaining alert." The ready

room is an area where officers not on patrol may relax, but are ready to respond as needed.

The manager said he had suggested in a March 2007 letter approaches for catching the sleeping guards.

The Wackenhut manager claimed he had forwarded his concerns to the NRC on behalf of the security officers because they were afraid of retaliation if they raised concerns, according to the memo.

NRC's Region I office referred the March 2007 concerns to Exelon in a letter on April 30, 2007. Three concerns were emphasized: 1) guard sleeping on duty, 2) guards fearing retaliation if they reported safety concerns, and 3) that Exelon was aware of the officers sleeping on duty and was not taking action.

Exelon responded in a letter on May 30, 2007, saying the concerns were not substantiated, based on several points. 1) Exelon had measures in place to reduce potential for inattentiveness, such as random radio checks, requirements for officers to walk around every 15 minutes, random observations of officers in the tower post, and supervisor visits twice per 12-hour shift. 2) Interviews did not confirm the allegations, 3) reviews of corrective actions reports did not show reluctance to report safety problems, and 4) officer work hour averages were lower than NRC limits.

The NRC Inspector General office noted that the NRC's May 30, 2007 letter did not contain any documents to support its evaluation of the safety concerns. The memo also explained that the two Exelon investigators who reviewed the March 2007 concerns concluded that the allegations were unsubstantiated. The Inspector General also noted that those Exelon investigators said at the time that they would have liked to have had more information from the Region I office about the concerns. But Region I said, in the past, Exelon had asked for more information when needed.

In May 2007, the Region I Division of Reactor Projects recommended the allegation file be closed, the memo said. The Region I Division of Reactor Safety delved into Exelon's response in a bit more detail, looking at how the random checks were implemented, how often, how many officers were checked and how checks were documented. That director concluded, also in May, that Exelon's response to the safety concerns was reasonable and sufficient in both depth and scope.

However, an engineer for the Division of Reactor Projects noted that Exelon might have interviewed a larger number of personnel, and said that he was unaware, at the time he made his review of Exelon's response to the concerns, that no security officers were interviewed from the team with the allegedly inattentive officers.

NRC's Region I Division of Reactor Safety pointed out that Exelon never explained exactly what was meant by "random observations," whether that meant post checks or visual observation and noted that observation of the Bullet Resistant Enclosure (BRE) tower guards was "not feasible." Others on the Region I staff agreed it would be hard to "sneak up" on BRE guard to check on inattentiveness.

The NRC's Office of the Inspector General found that the NRC's Region I office was "inconsistent" in its assessment of the safety significance of the two allegations, made within six months of each other, expressing similar concerns about inattentive security officers at the Peach Bottom Atomic Power Station. The inconsistencies were in relation to allegations that officers feared retaliation if they reported safety concerns, and the

allegation that Exelon was aware that officers were inattentive on duty but did not take action to address the matter.

The Inspector General's report noted that the Region I staff did not question the information they were given by Exelon and did not probe or attempt to verify it. The NRC memo said that Region I staff could have contacted the former Wackenhut security manager to obtain more specifics, could have provided Exelon with more detailed information, could have provided the information to the NRC's resident inspectors at Peach Bottom for increased monitoring of guard activities, and could have assigned Region I security inspectors to look into the March 2007 concerns during a baseline inspection that took place from April 30 to May 4, 2007.

-Report by Marlene Lang

Aug. 28, 2008- Inspection procedures complete regarding inattentive guards
NRC: Matter closed

The Nuclear Regulatory Commission completed its inspection and review of Peach Bottom's "inattentive security guard events" and concluded that "the licensee (Exelon) has adequately addressed the commitments/actions described in (Confirmatory Action Letter) 1-07-005; the NRC has reasonable assurance that the Peach Bottom facility will continue to be operated safely; and adequate corrective actions have been taken to prevent reoccurrence of the underlying issues that led to the inattentive security officer events."

A letter to Exelon from the NRC said that the company would be expected to fulfill its commitment to conduct "safety conscious work environment" (SCWE) surveys of security organizations at all its nuclear reactor sites to identify any actions that need to be taken, and to inform the NRC by Oct. 31, 2008 of survey completion so that a meeting can be scheduled to discuss the results.

Additionally, the NRC gave Exelon a "White" level safety finding related to the incidents and for having "an ineffective behavior observation program."

-Report by Marlene Lang

Aug. 29, 2008- Supplemental inspection finds nothing 'significant'
Inspectors conclude management of guards was 'inadequate'

An NRC inspection, completed July 25, 2008, examined Exelon's response at Peach Bottom to a previous "White" level finding related to inattentive security officers. The report on the supplemental inspection stated no findings of significance were identified. The report also stated that Exelon's comprehensive evaluation of the security officer inattentiveness issue determined three root causes. They were: 1) Inadequate Exelon management oversight and leadership of Wackenhut Nuclear Security management to ensure appropriate security force performance. 2) Wackenhut Nuclear Security failed to provide adequate oversight of security force performance, and 3) an adverse culture of inattentiveness and non-compliance with the behavior observation program existed within the Peach Bottom Atomic Power Station security organization.

The report stated Exelon had addressed the issue acceptably, but the matter would be considered in assessing plant performance in future assessments, through the third quarter of 2008.

-Report by Marlene Lang

Sept. 10, 2008- WCBS in New York informs the NRC that it has a videotape of guards asleep or nodding off in a "ready room" near the nuclear reactor.

Sept. 21, 2008- An NRC inspection confirms only the 10 guards caught on tape were sleeping — only one of four shifts is implicated.

Oct. 10, 2008 -Water leak in containment area not analyzed

NRC inspectors found Peach Bottom Atomic Power Station Unit 1 reactor had failed to perform periodic radiological analysis of water in the containment vessel, as required by federal code.

An inspection conducted in July and August 2008 found that water that had accumulated in the containment vessel on the 87-foot, 9-inch elevation under a removable floor plate in a hallway was not analyzed. The water "intruded" into the Unit 1 containment vessel and the radioactive waste building, the report stated. The water accumulated was less than the code specification limit of 500 gallons. According to the report, the water had been there since "at least January 2005."

The finding was considered a Level IV violation, but was not cited, as Exelon "initiated a plan to restore compliance."

Inspectors also found that Peach Bottom had failed to properly keep records related to decommissioning, not maintaining or referencing the location of all required records "important to the safe and effective decommissioning of the facility." The site file contained a list of "spills and released from 1976 to 2004" but it did not contain other required records and their locations, as code demands.

Owner Exelon was not cited for the Level IV violation.

-Report by Marlene Lang

Nov. 1, 2008- Exelon terminates its contract with Wackenhut and takes over the plant's security. Whistle-blower Kerry Beal, on leave during the investigation, is not among the Wackenhut guards rehired by Exelon.

Nov. 5, 2008- NRC inspectors follow up at Peach Bottom to ensure Exelon is correcting the problem.

A Sept. 30, 2008 inspection of the Peach Bottom Atomic Power Station, Units 2 and 3 by the Nuclear Regulatory Commission found three violations by owner Exelon Generation Company LLC, though no citation were made.

In a self-revealing non-cited violation, a failure to follow procedure was revealed after an emergency service water leak (ESW) was discovered on the E-1 emergency diesel generator (EDG), according to the NRC's report, dated Nov. 13, 2008. The report said the leak "resulted in safety-related equipment being adversely affected."

The NRC determined the finding was of "very low safety significance," or Green level, because it did not represent an actual loss of system safety function.

Also, a transformer fire and petroleum spill were not properly reported to the NRC, according to the NRC report. A Level IV Severity event, NRC inspectors noted the NRC was not notified by the Peach Bottom Power Station of the reportable event on July 23 and 24, 2008. Inspectors found a planned press release and notification of other government agencies concerning the transformer fire and petroleum spill. The NRC report state "the failure to make a required report could adversely impact the NRC's ability to carry out its regulatory mission," and that the event was related to public health and safety as it contributed to the loss of the plant's three offsite power sources. The event was also noted as an environmental protection issue because "it involved the spill of more than minor quantity of oil the required reporting to the state of Pennsylvania."

Because the NRC had been "informally notified," the NRC determined the finding was a non-citation violation.

NRC inspectors also found the Peach Bottom plant did not conduct a sufficient quality assurance program, adequate to identify incorrect gamma spectroscopy analyses of a principal gamma emitting radionuclide used to scale hard-to-detect radionuclides for purposes of waste classification in accordance with 1- CFR 61.55. The report noted, "The failure to conduct a sufficiently robust quality assurance program ... is a performance deficiency that was reasonably within the licensee's ability to foresee and correct." The NRC called the finding "more than minor" because it affect the plant's "cornerstone objective" by failing to identify incorrectly anylyzed samples used to classify radioactive waste for land disposal.

The finding was considered of "low safety significance" because no radiation limits were exceeded, there was no breach of packaging and no certificate of compliance finding, no low-level burial ground non-conformance, and no failure to make notifications or provide emergency notification.

- Report by Marlene Lang

November 13, 2008- NRC inspects Peach Bottom plant, finds three violations, makes no citations

Dec. 10, 2008- Hunters trespass on power plant property

Several hunters were found to be trespassing on company property in the vicinity of the north substation of the Peach Bottom Atomic Power Station.

The incident was classified as an Event of Potential Public Interest (EPPI) by officials, who issued a report for Units 2 and 3 around 1 p.m. on Dec. 10.

The state Department of Environmental Protection Bureau of Radiation Protection was notified along with Military and Veteran Affairs, the Public Utility Commission, state police, officials of Chester, York and Lancaster counties and PEMA's central office.

-Report by Marlene Lang

May 12, 2009- NRC inspection finds plant departed from code in analyzing spent fuel pools

NRC inspectors who completed a quarterly inspection of the Peach Bottom Atomic Power Station on March 31, 2009 found three violations at the plant.

Two were rated “Green” findings but a third was considered a Severity Level IV violation, but none were cited, according to the NRC report of the inspection.

In one case, NRC inspectors reported that inadequate work instructions resulted in a momentary shorting of a terminal lead during maintenance, causing an inadvertent one-hour shutdown of reactor Unit 3. A containment isolation valve signaled the shutdown.

The report explained, “Work instructions allowed technicians to lift and manipulate energized leads on a safety-related pressure switch, without providing any guidance as to the risk and consequences that inadvertent grounding of those leads could cause.”

The report also stated that the failure “could reasonably be viewed as a precursor to a major event.” The valves in question “failed closed,” the report stated, and “did not represent an actual open pathway in the physical integrity of reactor containment.”

The failure to “provide appropriate risk insights” to workers was a human performance and work control issue, according to the inspectors’ report.

This finding was rated Green and was not cited.

In another “Green” inspection finding, a partial shutdown of the Unit 3 reactor occurred on Jan. 26, 2009 when the ‘A’ Wide-Range Neutron Monitoring (WRNM) became inoperable due to “inadequate procedural guidance regarding adjustments to the mean square voltage offset during the outage.”

The same NRC report described workers’ failure to make a “smooth transition” when shutting down the Unit 3 reactor to replace a main transformer, triggering a partial shutdown or “half-scam,” in industry terms.

The full explanation of the incident explained that the neutron monitor read a certain noise as mean square voltage (MSV) fluctuation within the reactor core. To compensate, the MSV was adjusted to a value of 8E9, though the MSV offset cannot be set higher than 3E8. According to the report, a system manager had specifically said this, but personnel performing the work did not “address the comments,” and this mis-adjustment caused the failed “smooth transition” and a sudden shift in the WRNM, which in turn generated the shutdown signal.

An NRC analysis of the incident concluded that the “deficiency,” or cause of the incident was the use of only two, instead of the required three operable WRNMs, on the Reactor Protection System (RPS) trip, when transferring to “Mode 2.”

The Severity Level IV code violation was noted because the Peach Bottom plant had used a spent fuel pool criticality analysis methodology that was not previously approved by the

NRC, departing from the code-prescribed method and failing to obtain NRC approval or a license amendment to do so.

The methodology relates to degraded Boroflex in the high density spent fuel storage racks. Peach Bottom was using a formula to calculate density that differed from the federal code's formula, mixing existing and new methodologies within the system.

The finding could affect the functionality of the fuel barrier (cladding), the report said, but stated the condition was of very low safety significance.

Peach Bottom agreed to correct the problem by coming up with an evaluation method adequate for testing safety of the spent fuel pool storage racks in accordance with federal code.

2010

Sept. 22, 2010 – Plant officials notify NRC at 5:53 p.m. that a number of emergency sirens lost power during a thunderstorm that passed through York County and Harford County, Md. Plant said 21 emergency sirens lost power in York County and eight sirens lost power in Harford County. Because more than 25 percent of the sirens were unavailable, the following agencies were contacted: Pennsylvania and Maryland Emergency Management; Harford and Cecil counties in Maryland; and Lancaster, Chester and York counties in Pennsylvania.

Sept. 30, 2010- On Sept. 30, 2010, the NRC issued a report on an audit conducted on units 2 and 3 during Dec. 16-17, 2009. An audit is conducted every three years to determine whether licensee programs are consistent with industry guidance.

In the audit, the NRC said Peach Bottom implemented NRC commitments on a timely basis for licensing activities and has implemented an adequate program for managing NRC commitment changes. The NRC also found that there were some discrepancies regarding the implementation of some commitments.

The audit found that there was a non-implemented commitment relating to “fuel moving and core loading with secondary containment inoperable (plant shutdown)” at units 2 and 3. The NRC said the licensee did not implement the commitment it received in September 2008, and “did not process a commitment change to evaluate and document this decision.” The NRC said this discrepancy was entered into the licensee's correction action program.

The audit also found issues relating to the use of Delta Mururoa BLU respiratory suits. . “The licensee indicated that the associated commitments had not been implemented since the suits have not been used” at Peach Bottom, the NRC report said. “However, the NRC staff noted that there was no indication in the commitment tracking system documenting that the site did not have to comply with the commitment until the suits were used.”

The audit found that Peach Bottom had not developed a lesson plan for training, and had partially implemented commitments with the manufacturer for reporting any defects of the suits, and the proper procedures in case the suits begin to lose air, condensation appears on the visor, or the wearer feels unusual warmth.

The audit also found there were complications regarding the use of two tracking systems and inadequacies in the assignment of commitments at the corporate level. "Corporate and site personnel have access to both systems, but a manual interface is required to coordinate the two systems," the NRC report said. "The NRC staff identified issues regarding the tracking of fleet wide commitments" at Peach Bottom, the report said. "One such commitment was to revise the placement of dosimetry in response to the use of new

weighting factors for the determination of the deep-dose equivalent for external exposures.'

According to the NRC report, the licensee "found that the commitment had not been routed to the plant site correctly, and therefore, did not appear in the licensee's search." The discrepancy was entered into the plant's corrective action program, the NRC said.

Oct. 22, 2010 – A helium leak was discovered in a cask that stores spent nuclear fuel. The cask was located within the Unit 3 containment building at the Peach Bottom Atomic Power Station.

According to the NRC, a preliminary review showed "that a leak exists at the weld plug that provides sealing of the drilled interseal passageway associated with the drain port penetration of the cask lid." It added, "This leak effectively provides a bypass of the main lid outer confinement seal.

Plant officials said they were working with a vendor to repair the leak, and no radiation had been released.

Nov. 10, 2010- The NRC issued its findings from an integrated inspection conducted at Units 2 and 3 at the Peach Bottom plant for the third quarter ending Sept. 30.

Based on the inspection, the NRC said it identified one non-cited violation of very low safety significance. It was entered into the plant's corrective action program.

The finding involved the failure to adhere to technical specifications to make sure that adequate voltage was available to all safety-related components required to respond to a loss-of-coolant accident.

“The licensee must demonstrate that the existing degraded voltage trip setpoints... are adequate to protect and provide the required minimum voltage to all safety-related

equipment,” the NRC said. “Since load tap chargers (which plant operator Exelon used in its calculations) are not safety-related and are subject to operational limitations and credible single failures, they cannot be relied on to establish degraded voltage relay setpoints and time delay input for design basis calculations.”

The NRC said it informed Exelon that the voltage levels used in its calculations were not correct, and “to show safety-related equipment would be operable during design basis events, the technical specifications degraded grid relay

setpoints must be used.” It added that Exelon performed electrical calculations using the most limiting voltage levels allowed by the specs, and “determined that multiple components would not have adequate voltage.”

On another matter in the report, the NRC inspectors focused on a Nov. 12, 2009, non-cited violation when Exelon implemented a temporary configuration change without a review that would have likely required a license amendment before its implementation. In response to this incident, the NRC said, “The inspectors concluded that Exelon has identified and taken appropriate actions to resolve the issues ... The inspectors reviewed the procedure revision and determined that the new changes were appropriate to address the program gaps that existed in the old revision.”

The NRC report also noted there was an unresolved item dealing with potential procedural inadequacies during fuel handling incidents in the reactor core and spent fuel pool from Sept. 18 to Sept. 24, 2010.

“The events appear to be examples where inadequate procedures contributed to fuel handling issues,” the NRC said. “This issue will remain unresolved pending completion of Peach Bottom’s investigation and cause evaluation processes under the corrective action program.”

May 13, 2011 – The NRC said there would be no significant environmental impact with the transfer of low-level radioactive waste from the Limerick Generating Station in southeastern Pennsylvania to a storage facility at the Peach Bottom plant.

Peach Bottom officials initially requested a license amendment to allow the transfer of the waste on Jan. 6, 2010. The waste does not include any transfer of spent nuclear fuel from Limerick.

Exelon operates both nuclear power plants.

The Limerick plant does not have the capacity to store all of the low-level radioactive waste it generates. The NRC noted that the Barnwell disposal facility in South Carolina is

no longer available for Limerick, but Peach Bottom has the ability to store a large amount of low-level waste on an interim basis.

In its environmental analysis, the NRC noted that there would be two or three shipments a year from Limerick to Peach Bottom. "The distance between the plant sites is less than the distance that was previously traveled to the Barnwell disposal facility in South Carolina," the NRC noted.

"The staff concludes that the radiological impacts associated with the transportation, handling and storage of low-level radioactive waste at Peach Bottom will not result in a significant impact to plant workers and members of the public," the NRC said.

"The proposed action will not significantly increase the probability or consequences of accidents. No changes are being made in the types of effluents that may be released offsite. There is no significant increase in the amount of any effluent released offsite. There is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action."

Sept. 18, 2011 – The York Daily Record reported that an injured Peach Bottom worker was transported to York Hospital while wearing a contaminated work glove. The glove was covered by a bag and handled by a radiation protection technician, but was not

removed due to the worker's injuries, the newspaper reported. Once the ambulance arrived at the hospital, the glove was removed, tested and transported back to the plant.

No contamination was passed to surrounding areas, Peach Bottom spokesman David Tillman told the newspaper.

The incident occurred while the worker was fixing a valve at Unit 3 of the plant, which was in shutdown mode for maintenance and refueling. The paper said a valve the worker was examining closed on the fingertips of his left hand.

Nov. 10, 2011 – The NRC issued its inspection report for Units 2 and 3 completed for the third quarter ending Sept. 30, 2011.

No findings of significance were identified. However, a licensee-identified violation was determined to be of very low safety significance and was treated as a non-cited violation.

Nov. 17, 2011 – An NRC inspector conducted a routine safety inspection of Unit 1 at the Peach Bottom Atomic Power Station on Oct. 26-27, 2011. Unit 1 is a gas-pooled demonstration power reactor that operated from February 1966 through October 1974, and has been permanently shut down and in safe storage since then.

Based on the inspection, no issues of safety significance were identified, the NRC said in a letter.

Dec. 15, 2011 – The NRC issued a report on the inoperability associated with an offsite power circuit at Units 2 and 3. This situation was confirmed on Nov. 16, 2010, and is a violation of technical specifications

The NRC report said modifications performed in the mid-1990s failed to upgrade the reliability of offsite sources, essentially minimizing redundancies.

Technical specifications require that there be two qualified circuits between offsite transmission networks and Units 2 and 3, the NRC said. “With one offsite circuit inoperable, the inoperable circuit must be returned to an operable status within seven days or the unit must be brought to a hot shutdown condition within 12 hours,” the NRC report said. There were two occasions in 2010 (March and May) when this requirement was not met, the NRC said. There was another period in 2010 as well, but the violation did not exceed seven days.

“There were no actual safety consequences associated with this event,” the NRC said.

Feb. 10, 2012 – The NRC issued its report of the quarterly inspection of Units 2 and 3 for the period ending Dec. 31, 2012. The report said there were four findings, two identified by the licensee Exelon that were of very low safety significance.

One NRC finding involved a failure to establish and implement an adequate quality assurance program regarding effluent and environmental monitoring of Units 2 and 3. “The finding is more than minor because it is associated with the public radiation safety cornerstone attribute of programs and processes,” the NRC report said. “The licensee reassessed the dose to members of the public from routine releases and determined that projected doses did not, nor were likely to, exceed applicable limits,” the NRC added.

The violation related to the finding “is currently under review by the NRC,” the report said.

NRC inspectors said it identified six examples where the effluent and environmental quality assurance program was ineffective. Among the examples: Exelon did not conduct an evaluation of its 2010 land use census results that show a need for additional monitoring stations; Exelon did not conduct an assessment of its long-term meteorological data to compare the 2010 results against long-term averages; Exelon's failure to evaluate its first, second and third quarter 2011 inter-laboratory samples to determine if sample analyses met applicable quality assurance requirements; and a failure to conduct its onsite biennial evaluation for liquid tritium analysis during its second quarter 2011 sample activity.

"The failure to establish, implement and maintain such a quality assurance program were reasonably within Exelon's ability to foresee and should have been prevented," the NRC said.

The NRC added, "There was no indication of a spill or release of radioactive material on the licensee's site or to the offsite environment that would impact public dose assessments and there was no substantial failure to implement the radioactive effluent release program. There was no effluent monitor calibration issue and the licensee had data by which to assess dose to a member of the public. Exelon plans to provide updated effluent release and dose reports, as necessary, to reflect revised analyses."

Another finding involved Exelon's failure to correct a safety related matter of a motor-operated valve. "Specifically, corrective actions to prevent recurrence of motor-operated valve program testing failures due to degraded stem lubrication in 2009 were not performed in a timely manner to prevent the inoperability of a safety related" valve, the NRC said. It noted that a valve did not develop sufficient thrust during diagnostic testing on Sept. 22, 2011, and "would not have been able to perform its safety function to close during the most limiting design condition."

The report observed that Peach Bottom officials determined that degraded motor-operated valve stem lubrication resulted in four safety-related program failures in March and April of 2009. It was found that the lubricant should be changed, noting that the vendor for the old lubricant canceled production in 2001. At the time, Peach Bottom began a transition to another lubricant for its motor-operated valves, a process that was to be completed by the end of 2014.

By the end of 2011, 128 of the 182 motor-operated valves had been transitioned to a different grease, the NRC report said. Based on a review, 14 motor-operated valves had their conversion dates moved up, and Peach Bottom said it decided to expedite its correction program to complete the transition process by the end of 2013, not 2014.

The NRC report also listed two licensee-identified violations that were of very low safety significance. One involved a failure to perform maintenance that affected an emergency diesel generator. "Specifically, Peach Bottom determined that a damaged lubrication oil drain line should have been identified and replaced during planned maintenance activities prior to the occurrence of leakage," the report said.

Peach Bottom also found that a particular pump was in inoperable during a period of time from April 27, 2010, to Oct. 2, 2011. Officials determined that a leaking relief valve body could have become detached from a residual heat removal suction piping, resulting in the pump's inoperability. Peach Bottom "determined the cause of the delay in identifying the inoperable condition was due to inadequate technical rigor when evaluating the operability of the relief valve on April 27, 2010," the NRC said. The leaking valve was replaced on Oct. 2, 2011.

The NRC also commented on an issue regarding the start time for a 15-minute classification period of a fire. (See previous reports dated Sept. 12, 2011, with both Peach Bottom and Three Mile Island.) The NRC had said the Peach Bottom policy decreased the effectiveness of the plant's emergency plan. The NRC said Exelon entered the matter into its corrective action program and implemented a revision. "The inspectors determined that Exelon's response and corrective actions were reasonable and appropriate to address the non-cited violation and finding and their underlying performance deficiency," the NRC said. "The NRC considers the issue to be closed."

The NRC also observed that Peach Bottom was appropriately identifying and entering issues into its corrective action program. However, the inspectors did note some ominous trends, including issues of industrial safety and equipment reliability.

It noted that there were three Occupational Safety and Health Administration recordable injuries in September 2011, and there were 45 first aid events during the September/October 2011 Unit 3 refueling outage

The report also noted that Peach Bottom submitted five event reports related to degraded or failed equipment from June 1 to Dec. 31, 2011. "The inspectors verified that all of the equipment issues identified ... have been entered' the plant's corrective action program, the NRC said.

NRC inspectors also evaluated the performance of an emergency drill on Dec. 5, 2011. No problems were identified.

March 12, 2012 -

July 23, 2012 – The NRC issued a letter to Peach Bottom officials informing them of some security inspection issues in January 2011.

Specifically, the NRC said its Office of Investigations determined that a security lead supervisor and a security officer "willfully falsified security post inspection documentation." The incidents occurred on Jan 16 and Jan. 25 in 2011, the NRC said.

On these two dates, the NRC said, the lead supervisor did not physically access security posts to conduct inspections that are designed to make sure the security officer is attentive to duties and is free from any condition that would detract from workplace

performance. On those two days, the NRC said, the lead supervisor contacted the security officer by phone, and then forged the security officer's signature on a post inspection form with the security officer's consent. "Additionally," the NRC said, "the security officer forged the lead supervisor's signature on the post activity log with an entry indicating the inspection had been conducted."

The NRC said the violation was of very low safety significance because, "although the (lead supervisor) did not access the post locations on those occasions to monitor the environmental conditions and to monitor the assigned security officer for attentiveness and signs of fatigue, other (plant) security supervisors inspected those posts both before and after the (lead supervisor) failed to do so. Additionally, when the lead supervisor contacted the security officer by telephone, the security officer answered the telephone."

The NRC said that corrective actions were taken by the plant, including disciplinary action against the lead supervisor and the security officer, and training with security department personnel on the proper procedures for signing logs.

The OI completed its investigation on April 11, 2012.

September 12, 2012

About 50 workers at Peach Bottom nuclear plant exposed to low levels of radiation

Peach Bottom Atomic Power Station in Peach Bottom Township. (FILE)
York, PA -

Roughly 50 workers at Peach Bottom Atomic Power Station were exposed to low levels of radiation early Tuesday after a discharge of contaminated steam. At 1 a.m. that morning, workers were loosening a two-inch vent on top of the Unit 2 reactor vessel head when a "puff" of radioactive steam escaped from a flange, said Neil Sheehan, a spokesman for the U.S. Nuclear Regulatory Commission. Radiation monitoring alarms sounded as workers, dressed in bright yellow radiation-protection suits, hurried to close the vent. In total, the length of the release lasted about 2 minutes.

The reactor is offline for a planned refueling outage. About 2,000 contracted or outage workers at the plant will spend the next several weeks completing maintenance work and replacing nearly one-third of the reactor's fuel.

Initially, 51 of the 138 workers stationed in the area of the Unit 2 reactor vessel early Tuesday didn't clear the plant's radiation monitors, meaning that they still registered a higher dose of contamination, Sheehan said. After a change of clothes and a shower, seven of the 51 workers no longer triggered the monitors.

Of the remaining workers, 27 had been exposed to more than 10 millirems of radiation and 17 registered a dose of less than 10 millirems. A millirem is a measure of radiation

exposure. One worker came back with a dose of 173 millirems- the highest level of exposure tied to the radioactive steam, Sheehan said.

"For that employee, follow-up monitoring shows that contamination levels have fallen off and, today, are almost at the level of being undetectable," said David Tillman, a Peach Bottom spokesman.

The occupational radiation exposure limit for nuclear industry workers is 5,000 millirems per year, Sheehan said.

The average American citizen is exposed to 610 millirems each year from natural and manmade sources, he said.

What happened?

On Tuesday morning, as workers disassembled the vent, a step in the process of refueling Unit 2, water levels inside the reactor were higher than expected, Sheehan said.

Nov. 14, 2012 – The NRC issued its report on its inspection of Units 2 and 3 of the Peach Bottom Atomic Power Station for the third quarter ending Sept. 30.

In the report, the NRC identified one self-revealing finding of very low safety significance. In addition, the report listed one licensee-identified violation determined to be of very low safety significance.

The NRC finding involved the failure of the plant operator to avoid a situation during maintenance activities of the lower pressure coolant injection system at Unit 2.

The incident occurred on July 25, 2012, when electricians were performing an electrical cable pull "for the multiple spurious operations project into the Unit 2 energized low pressure coolant injection swing bus motor control cabinet." During the pull, lubrication contacted one of the electrician's gloved hands and caused the hand to suddenly slide up the cable and contact the edge of an adjacent interposing closing relay, the report said. The contact actuated the relay, the report added, resulting in an over current alarm in the control room

The NRC said the potential over-thrust event "called into question the qualification and operability of the valve."

The report added, "The inspectors noted that the workers performed a two-minute-drill to assess the hazards and safety concerns in the work area, but did not consider the possibility of lubrication contacting their work gloves and causing their hands to slip during the cable pull. The inspectors also noted that the operational risk of the cable pull was not communicated to the workers."

The report also mentions a Sept. 11, 2012, review of radiological issues due to the release of steam during the opening of the reactor vent line flange at Unit 2. “A total of 47 individuals received internal uptakes and were whole body counted,” the report said. “There was no radioactive release from the reactor building due to this event.”

The licensee identified violation involved the failure to promptly correct defective welds in the E-3 emergency diesel generator lube oil piping that were identified in 1998. A leak was identified in the piping during surveillance testing on Sept. 3, 2012. Corrective action was taken.

Jan. 29, 2013 – The NRC issued a report of its fourth quarter inspection of the Peach Bottom Atomic Power Station Units 2 and 3. The NRC identified no findings, although it noted that the plant owner, Exelon, identified three matters that were viewed of very low safety significance. The NRC said the licensee-identified violations were placed in the company’s correction action program and were being treated as non-cited violations.

March 4, 2013 – In an annual assessment letter for 2012, the NRC said it determined that overall, Peach Bottom Units 2 and 3 “operated in a manner that preserved public health and safety and met all cornerstone objectives.”

March 12, 2013 – The NRC issued a report on a two-week inspection completed Jan 31, 2013, relating to an application for an operating renewal license for Unit 2. No findings were identified during the inspection.

April 26, 2013 – The NRC submitted a letter to plant operator Exelon seeking additional information relating to a request to increase the maximum power level at Units 2 and 3 from 3,514 megawatts thermal to 3,951 megawatts thermal. The request, the NRC notes, represents an approximate 12.4 percent increase from the current licensed thermal power level.

Exelon submitted the licensee amendment request on Sept. 28, 2012, and supplemented it by letter on Dec. 18, 2012.

May 9, 2013 - The NRC issued its quarterly inspection report of Units 2 and 3 for the period Jan. 1, 2013, to the end of March.

In the report, the NRC identified one finding stemming from a Feb. 24, 2013, incident when a determination of operability was not made in a timely manner. The issue stemmed from a monthly functional test of the power load unbalance (PLU) circuit. The NRC said the purpose of a PLU circuit is to prevent overspeed of a main turbine.

“Inspectors determined operators had sufficient information, as of 6:15 a.m. on Feb. 24, to make an immediate determination of PLU functionality and subsequent minimum critical power ratio thermal limit impact, and document the basis for their decision.” Nonetheless, the NRC inspectors determined that the operators did not follow its procedures that state “operability should be determined immediately upon discovery of a

degraded or nonconforming condition, and that the determination should be made without delay and in a controlled manner using the best information possible.” The NRC added that the status of the problem was not documented in the conditions report. The issued continued until 10:30 a.m.

“This finding does not involve an enforcement action because no violation of a regulatory requirement was identified,” the NRC report said. It added that Peach Bottom entered the matter into its corrective action program.

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 2 and 3 at Peach Bottom are affected by the directive.

June 20, 2013 – The NRC issued a special report of an investigation after a instrumentation and controls technician failed to follow posted high radiation area requirements when he crossed a boundary to manipulate a valve on June 28, 2012. During the investigation, the NRC found that the employee deliberately failed to comply with the posted boundary. The investigation was initiated at the behest of plant licensee Exelon.

The NRC said it concluded that the action should be classified as a severity level IV violation, and was treated as a non-cited violation for a variety of reasons. The NRC noted that the radiological conditions did not “actually constitute a high radiation area in accordance with the regulatory definition,” but it decided to increase the significance of the violation to security level IV “since it was deliberate and the NRC’s regulatory program is based, in part, on licensees and their contractors acting with integrity.”

It treated the matter as a non-cited violation because Exelon placed the issue in its corrective action program; it identified the problem and immediately conducted an investigation; the violation was not repetitive; and the violation “did not involve a lack of management oversight and was the result of the isolated action of the employee.”

June 25, 2013 – The NRC issued a report on its inspection of Units 2 and 3 relating to the safe operation of the plant.

“The inspectors concluded that Exelon (the plant licensee) was generally effective in identifying, evaluating and resolving problems,” the NRC report said. “Exelon personnel identified problems, entered them into their corrective action program at the low threshold, and in general, prioritized issues commensurate with their safety significance.

“The inspectors concluded that Exelon adequately identified, reviewed and applied relevant industry operating experience to Peach Bottom operations,” the report added.

In addition, the report said that “inspectors did not identify any indication that site personnel were unwilling to raise safety issues, not did they identify any condition that could have had a negative impact on the site’s safety conscious work environment.”

Feb. 4, 2014 – The NRC issued a report on its quarterly inspection at Units 2 and 3 at the Peach Bottom Atomic Power Station. The report covered the period from October through December 2013.

In the report, the NRC said no findings were identified. However, it added that there was one licensee-identified violation that was determined to be of very low safety significance and was being treated as a non-cited violation.

The licensee-identified violation involved setpoint deficiencies with four safety relief valves and one safety valve at Unit 3. Their setpoints were found to be outside the technical specification variance of plus or minus 1 percent. They were within the allowable range of plus or minus 3 percent. The NRC report said this issue was caused by “setpoint drift” and the valves were replaced.

March 4, 2014 – The NRC completed its annual assessment of Units 2 and 3 at the Peach Bottom Atomic Power Station and said the reactors were operated in a “manner that preserved public health and safety and met all cornerstone objectives.”

The NRC added that the two units were within the “Licensee Response Column” of the NRC’s oversight process because all inspection findings had a very low safety significance.

July 16, 2014- The Alpha Cooling Tower had to be shut down due to damaged (burned up) cable on the feed motor power supply. Exelon is currently trying to determine the details on why and how it happened. They have mobilized in house staff in response as well as having reached out to contractors and motor/pump specialist to determine the problem.

Aug.23, 2014 – Both trains for the Peach Bottom Atomic Power Station Emergency Service Water System were declared inoperable on Units 2 and 3 due to a pin-hole wall piping leak,

Oct. 21, 2014 – The NRC conducted an inspection of Unit 1 from Oct. 7-9, 2014. Unit 1 is a high temperature, gas-cooled demonstration power reactor that operated from February 1966 to Oct. 31, 1974. In the report, the NRC said there were no findings of safety significance.

Nov. 3, 2014 – In a letter to officials of Exelon, the plant’s owner, the NRC said it found an apparent violation identified during a security inspection of the Independent Spent Fuel Storage Installation at the Peach Bottom plant. Details were not disclosed.

The letter said the NRC characterized the violation as an escalated enforcement action. However, no civil penalties were imposed.

“Because your facility has not been the subject of escalated traditional enforcement action within either the last two years or the two most recent inspections, the NRC considered whether credit was warranted for corrective action,” the NRC said. “The NRC considered that credit is warranted for Exelon’s corrective actions taken to address the violation.

“Therefore, in recognition of the absence of previous escalated enforcement action, and to encourage prompt and comprehensive correction of violations,” a civil penalty would not be imposed, the NRC said.

Nov. 7, 2014 – The NRC completed a three month inspection ending Sept. 30. In the quarterly report, the NRC listed three findings of very low safety significance that were treated as non-cited violations.

One finding said Exelon, the plant operator, “did not have the ability to implement all provisions of its approved Fire Protection Program.” This stemmed from broken electrical wires in a safety-related breaker cubicle associated with the E-2 alternate shutdown panel. “This condition potentially existed for an extended period of time (greater than a year), but was not readily identified by established periodic testing and maintenance procedures,” the NRC said. The finding was placed in Exelon’s corrective action program.

A self-revealing finding involved a July 11, 2014, incident in which an “eyebolt installed on the end of the discharge check valve swing arm (was found) in contact with a scaffold mid-rail, preventing full closure of the valve.” The NRC said, “Operators closed the check valve by pushing the swing arm past the scaffold pole. Operators then removed the eyebolt and verified that full range of motion ... was restored. In addition, the scaffold was modified to remove the mid-rail that caused the interference.” The NRC said this condition existed from Sept. 16, 2012, until its correction. “Although difficult for an operator performing rounds to visualize the scaffold obstructing the swing arm’s path of travel, the inspectors determined that opportunities were missed to identify the event beforehand,” the NRC said.

The other finding was that the plant “did not provide the evacuation time estimate to the responsible offsite response organizations by the required date.” The NRC said it found Exelon’s evacuation time estimates submitted on Dec. 12, 2012, and Sept. 5, 2013, were inadequate. The NRC cited the following examples: there was no allowance for weather factors in speed and capacity reduction; snow removal was not addressed; no bus routes or plans were included in the analysis; and there was no discussion of the means of evacuating ambulatory and non-ambulatory residents. “The inadequate (evacuation time estimates) had the potential to reduce the effectiveness of public protective actions implemented by the offsite response organizations,” the NRC said

March 2, 2015- Joseph Tolle awakened to see a refrigerator still plugged into the wall, swinging above his head. The refrigerator had been on a shelf situated 8 feet high in the security office in the watchtower. The former armed security officer described how that

shelf and part of a wall collapsed, causing the refrigerator to fall on his head. "I woke up on the floor and was dizzy and had a headache. My back was hurting. I was knocked unconscious for a period of time," the 26-year-old from Lancaster testified during a Feb. 18 workers' compensation hearing in Lancaster. Tolle was working for Exelon Corp.'s Peach Bottom Atomic Power Station in southern York County when the October incident occurred<http://www.pennlive.com/midstate/index.ssf/2014/11/peach_bottom_security_guard_to.html>. The company had denied his initial claim and so Tolle is pursuing his claim before Judge Robert J. Goduto at a workers' compensation hearing. During the hearing, both parties presented Tolle testified about the incident, had his medical history combed through and explained his current condition. Tolle and Exelon can settle before the judge holds a final hearing in July.

The Occupational Safety and Health Administration, a branch of the U.S. Department of Labor, did not find any wrongdoing on the part of the nuclear plant related to the incident. The plant has been inspected twice in the past 3 years, October 2012 and November 2014. Exelon received a citation from OSHA in October of 2012, which was informally resolved and cost the company a \$4,000 fine. No fines were levied following the November inspection. David Tillman, a spokesman for Exelon, said in an email that the company could not comment on the workers' compensation case until a judge has ruled on the case, adding that OSHA found no wrongdoing related to Tolle's case. "In this case, we inspected the officer's work area, put compensatory measures in place and cooperated fully with OSHA during an onsite review," Tillman said, noting that this investigation is completely separate from the workers' compensation case. Tolle described the room at the top of the watchtower as a 9-foot by 9-foot box, containing weapons, vests, radio equipment, a computer and desk. A microwave and refrigerator were sitting on shelves above the computer stand. He entered this room around 3:30 a.m. on Oct. 13 after relieving a co-worker from one of the watchtowers and checking weapons and gun ports, he testified. He started eating his lunch and was reading an article on the Fox News website about Ebola when the refrigerator fell. "I was reading the article, it's a little blurry, but I heard a snap ... I woke up and was scared," Tolle told Goduto. "I thought we might have been attacked. I looked around to see if anyone was in the tower. "He said he experienced pain in his left arm and back and his head hurt, adding that he was extremely dizzy. During the nearly 3½ hours he waited before being transported from the watchtower to Lancaster General Hospital, Tolle said he tried to pull himself up and turn on a light. The wall he used to brace himself collapsed. Since the incident, Tolle said doctors have treated him for traumatic, neurological and orthopedic injuries, but he cannot pay for any ongoing physical therapy to rehabilitate. Jerry Lehocky, Tolle's worker's compensation attorney, said he is working with doctors to get some of Tolle's treatment provided because his doctors say he isn't fit to work. "My balance is really bad. My memory is really bad." Tolle said. "Physically I can't do the job. I can't walk," Tolle testified, adding that he has anxiety and vertigo.

On cross-examination, Tolle told Exelon's attorney Robert Elias that he didn't have any contact with the wall before it or the shelves fell. He said that when he woke up after the refrigerator hit him, he tried to pull himself up to call for help. "I thought I was going to die, to be honest with you," Tolle said in response to Elias' questioning. Elias also

questioned Tolle's health history and mental health issues prior to working at the nuclear plant. Tolle revealed that he had to leave the U.S. Air Force after having a heart disorder discovered, as well as having to be treated for anxiety after the military discharge. Tolle's medical records included car crashes in 2009, 2011 and 2013, suffering injuries in 2009, he said. Tolle, who worked at the power plant since June 2011, said he was subjected to physical, psychological, a written test, oral interviews and weapons training, passing them all before getting the job. Ron Calhoon, a workers' compensation attorney in Harrisburg at Calhoon and Associates, who has tried more than 1,000 such cases, said it can take up to a year for case to come to completion once a claim is filed. He noted that the process gives the plaintiff and defendant time to seek medical exams, depose union officials and doctors, among other background information on the case. "A year is not a long time compared to personal injury action in civil court, those can take multiple years," Calhoon said. In 2013, there were 46,630 petitions and remands assigned, with 46,032 judges decisions in workers' compensation claims filed in Pennsylvania, which is on the decline, but has a large impact on the state's workforce. Calhoon said that because workers' compensation insurance is capped at \$951 a week no matter how much someone earns, but is generally 2/3 of what someone's wages, it keeps the costs lower and spread across each employee. "I do not think people understand that employees are covering the cost of workers' compensation," Calhoon said. "Most people think it's coming out of employer's pockets. That's the last place it's coming out of."

May 2015- EXECUTIVE SUMMARY

“Leak First, Fix Later” was first published in April 2010. Now nearly five years later, Beyond Nuclear has taken another look at the problem of aging and deteriorating piping systems carrying radioactive liquids that still run under every nuclear power plant. Nuclear power plants have an extensive network of buried piping systems and tanks which transport liquids that contain radioactive isotopes including tritium -- a radioactive form of hydrogen -- and long-lived strontium-90. These piping systems -- defined either as “buried” or “underground” --are not adequately inspected or maintained due to their inaccessibility.

The United States Nuclear Regulatory Commission (NRC) is the federal regulator charged by Congress with the oversight and enforcement of regulations and its licensing agreements governing these nuclear power plants. U.S. reactors continue to experience leaks and spills of radioactive material into groundwater the unmonitored pathways from unknown and unanticipated sources. To date, the nuclear industry and the federal regulator have failed to focus action plans on how to control and monitor pathways carrying radioactive material to prevent these leaks from occurring. Instead, despite broad uncertainties, the federal regulator and industry are using predictive and probabilistic models to estimate the remaining service life on uninspected and unmaintained pipes before leaks may be expected to occur.

As early as 1979, the NRC publicly identified the need for the nuclear industry to begin a proactive program of inspections and maintenance for the “Prevention of Unplanned Releases of Radioactivity” from reactors. Now, more than three decades later, the call for preventive action remains totally ignored by both the nuclear industry and its regulator.

The only apparent gain is that leaks are being reported. But the nuclear industry is self-reporting these repeated uncontrolled radioactive leaks to groundwater under an industry-led “voluntary initiative” program. In our view, voluntary reporting is not a reliable or acceptable substitute for a comprehensive regulatory program aimed at protecting water resources. Now, five years after our initial 2010 report, Beyond Nuclear has determined that the NRC has failed to mandate any corrective action programs that focus on inspection and maintenance programs aimed at groundwater protection by preventing ongoing radioactive leaks and contamination of water resources.

Leak First, Fix Later: May 2015

Main Findings-The licensing agreement between the nuclear power plant operators and the NRC is determined by General Design Criteria including control of radioactivity including "Criterion 60—Control of releases of radioactive materials to the environment. The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Uninspected, unmaintained and aging buried piping systems at nuclear power plants continue to experience unanticipated and unpredicted radioactive leaks into groundwater. The number of these uncontrolled and unmonitored leaks is increasing. The NRC has failed to mandate any enforcement or corrective action programs that focus on inspection and maintenance programs aimed at groundwater protection by preventing ongoing radioactive leaks and contamination of water resources. The nuclear industry and the federal regulator have failed to focus action plans on how to prevent these leaks from occurring. Instead, the federal regulator and industry are using predictive and probabilistic models to estimate the remaining service life on uninspected and unmaintained pipes before leaks may be expected to occur. The industry “voluntary” actions remain focused on radioactive leak detection, fixing and mopping up after a leak to groundwater as opportunities occur. In fact, the initiative serves more to protect the industry from liability than to protect the water.

Main Recommendations

- Regulatory oversight, authority and enforcement must be restored and strengthened.
- Standardized NRC regulations should require that underground pipes and tanks be promptly replaced so that systems carrying radioactive effluent can be inspected, monitored, maintained and contained in the event of leaks.
- The nuclear industry must be held accountable for radioactive releases to air, water and soil.
- There must be more public transparency describing the source, cause and extent of radioactive releases from nuclear power plants.
- Radiation protection standards must be strengthened and applied consistently nationwide.

June 18, 2015- Radioactive material was detected in a monitoring well in April at an Exelon-owned nuclear power plant in Pennsylvania about 40 miles from Baltimore, according to nuclear regulators. Exelon, the parent company of Baltimore Gas and

Electric Co. and the largest owner of nuclear power plants in the United States, notified the U.S. Nuclear Regulatory Commission that it found dangerous levels of tritium, a radioactive isotope of hydrogen, in a monitoring well at Peach Bottom Atomic Power Station on the Susquehanna River in Delta, Pa. The agency said the contamination posed no danger.

June 18, 2015- "I would say there's no cause for concern for people who work at the plant or members of the public," said Neil Sheehan, a spokesman for the NRC. "It's not used by members of the public. We're talking about low levels" of contamination. Exelon found tritium at 37,700 picocuries per liter, higher than the 20,000 picocuries per liter drinking water limit set by the U.S. Environmental Protection Agency

A groundwater monitoring well at the Peach Bottom nuclear power plant in Pennsylvania that tested positive in April 2015 for significant levels of tritium contamination is just the latest example of a decades-long pattern of leaking nuclear reactors and a weak regulatory system that fails to openly address and fix the problem as required in licensing agreements.

These were the conclusions of a Beyond Nuclear investigative report – Leak First, Fix Later: Uncontrolled and Unmonitored Radioactive Releases from Nuclear Power Plants – released today. The 2015 version of the report updates the findings of the first edition, published in 2010.

“Nuclear plant operators and their regulator consistently fail to address and enforce reactor performance requirements to protect the environment and public health,” said Paul Gunter, Director of Reactor Oversight at Beyond Nuclear and the author of the report. “Our research found that U.S. nuclear power plants continue to experience uncontrolled leaks and spills of radioactive water because the buried pipes and tanks that transport and store it remain inaccessible,” Gunter said.

July 29, 2015- **'Disoriented' man who drove up to Peach Bottom Atomic Power Station taken for mental health evaluation**

Trooper Rob Hicks, a spokesman for the Pennsylvania State Police, said he does not expect charges to be filed

The "disoriented" man who drove up to a security checkpoint at the Peach Bottom Atomic Power Station on Friday was not arrested, but instead taken for a mental health evaluation by police.

Trooper Rob Hicks, a spokesman for the Pennsylvania State Police, said he does not expect charges to be filed against the man. Hicks said he did not have information including the man's age, or where he is from.

At about 6 p.m., the man drove up to the checkpoint and was displaying "unusual behavior," a spokeswoman for the Peach Bottom Atomic Power Station has said. He did not get past the outer layer of security, and the plant was not shut down.

The Nuclear Regulatory Commission has said the man did not pose any threat to the power plant or its employees.

April 19, 2018 - By letter dated April 19, 2018 (ADAMS Accession Nos. [ML18109A116](#)), Exelon Generation Company, LLC submitted five relief requests for Peach Bottom Atomic Power Station Units 2 and 3, that request relief from certain requirements related to reactor pressure vessel internals, containment, nozzles, and threads in flange that are included in the ASME Section XI Code, 2013 Edition.

The NRC staff has reviewed the requests for relief and concluded that they provide technical information in sufficient detail to enable the NRC staff to complete its detailed technical review and make an independent assessment regarding the acceptability of the relief requests in terms of protection of public health and safety and the environment.

Given the lesser scope and depth of the acceptance review as compared to the detailed technical review, there may be instances in which issues that impact the NRC staff's ability to complete the detailed technical review are identified despite completion of an adequate acceptance review.

Based on the information provided in the submittal, the NRC staff has estimated that these relief requests will take a total of approximately 500 hours to complete. The NRC staff expects to complete this review by April 19, 2019, as requested. If there are emergent complexities or challenges in the review that would cause changes to the initial forecasted completion date (greater than a month) or significant changes in the forecasted hours (greater than 25%), the reasons for the changes, along with the new estimates, will be communicated during the routine interactions with the assigned project manager. These estimates are based on the NRC staff's initial review of the application and they could change, due to several factors including requests for additional information, unanticipated addition of scope to the review, and review by NRC advisory committees or hearing-related activities. Additional delay may occur if the submittal is provided to the NRC in advance or in parallel with industry program initiatives or pilot applications.

May 9, 2018 – Letter dated May 9, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Peach Bottom Atomic Power Station Units 2 and 3 – safety evaluation regarding implementation of mitigating strategies and reliable spent fuel pool instrumentation related to orders EA-12-049 and EA-12-051 (CAC NOS. MF0845, MF0846, MF0849 and MF0850; EPID NOS L-2013-JLD-0017 and L-2013-JLD-0018).

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design-Basis External Events," and Order EA-12-051, "Order to Modify Licenses With Regard To Reliable Spent Fuel Pool Instrumentation,"

(Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML12054A736 and ML12054A679, respectively). The orders require holders of operating reactor licenses and construction permits issued under Title 10 of the *Code of Federal Regulations* Part 50 to modify the plants to provide additional capabilities and defense in depth for responding to beyond-design-basis external events, and to submit for review Overall Integrated Plans (OIPs) that describe how compliance with the requirements of Attachment 2 of each order will be achieved.

By letter dated February 28, 2013 (ADAMS Accession No. ML13059A305), Exelon Generation Company, LLC (Exelon, the licensee) submitted its OIP for Peach Bottom Atomic Power Station, Units 2 and 3 (Peach Bottom), in response to Order EA-12-049. At six-month intervals following the submittal of the OIP, the licensee submitted reports on its progress in complying with Order EA-12-049. These reports were required by the order, and are listed in the attached safety evaluation. By letter dated August 28, 2013 (ADAMS Accession No. ML13234A503), the NRC notified all licensees and construction permit holders that the staff is conducting audits of their responses to Order EA-12-049 in accordance with NRC Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits" (ADAMS Accession No. ML082900195). By letters dated November 22, 2013 (ADAMS Accession No. ML13220A105), and September 23, 2015 (ADAMS Accession No. ML15254A135), the NRC issued an Interim Staff Evaluation (ISE) and an audit report, respectively, on the licensee's progress. By letter dated January 6, 2017 (ADAMS Accession No. ML17006A167), Exelon reported that Peach Bottom, Unit 2, was in full compliance with Order EA-12-049. By letter dated January 5, 2018 (ADAMS Accession No. ML18005A701), Exelon reported that Peach Bottom, Unit 3 was in full compliance with Order EA-12-049, and submitted a Final Integrated Plan for Peach Bottom, Units 2 and 3.

By letter dated February 28, 2013 (ADAMS Accession No. ML13059A390), the licensee submitted its OIP for Peach Bottom, Units 2 and 3, in response to Order EA-12-051. At six-month intervals following the submittal of the OIP, the licensee submitted reports on its progress in complying with Order EA-12-051. These reports were required by the order, and are listed in the attached safety evaluation. By letters dated October 30, 2013 (ADAMS Accession No. ML13295A303), and September 23, 2015 (ADAMS Accession No. ML15254A135), the NRC staff issued an ISE and an audit report, respectively, on the licensee's progress. By letter dated March 26, 2014 (ADAMS Accession No. ML14083A620), the NRC notified all licensees and construction permit holders that the staff is conducting audits of their responses to Order EA-12-051 in accordance with NRC NRR Office Instruction LIC-111, similar to the process used for Order EA-12-049. By letter dated December 15, 2015 (ADAMS Accession No. ML15352A135), Exelon submitted a compliance letter in response to Order EA-12-051. The compliance letter stated that the licensee had achieved full compliance with Order EA-12-051 at Peach Bottom, Units 2 and 3.

The below conclusions provide the results of the NRC staffs review of Exelon's strategies for Peach Bottom, Units 2 and 3. The intent of the safety evaluation is to inform Exelon on whether or not its integrated plans, if implemented as described, appear to adequately address the requirements of Orders EA-12-049 and EA-12-051. The staff will evaluate implementation of the plans through inspection, using Temporary Instruction 2515-191, "Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness

Communication/Staffing/Multi-Unit Dose Assessment Plans" (ADAMS Accession No. ML15257A188). This inspection will be conducted in accordance with the NRC's inspection schedule for the plant.

Conclusions for Order EA-12-051

In its letter dated December 15, 2015 [Reference 38], the licensee stated that they would meet the requirements of Order EA-12-051 for each unit by following the guidelines of NEI 12-02, which has been endorsed, with clarifications and exceptions, by JLD-ISG-2012-03. In the evaluation above, the NRC staff finds that, if implemented appropriately, the licensee has conformed to the guidance in NEI 12-02, as endorsed by JLD-ISG-2012-03. In addition, the NRC staff concludes that if the SFP level instrumentation is installed at Peach Bottom according to the licensee's design, it should adequately address the requirements of Order EA-12-051.

CONCLUSION

In August 2013, the NRC staff started audits of the licensee's progress on Orders EA-12-049 and EA-12-051. The staff conducted an onsite audit at Peach Bottom in June 2015 [Reference 23]. The licensee reached its final compliance date on November 6, 2017, for Order EA-12-049, and October 21, 2015 for Order EA-12-051, and has declared that both of the reactors are in compliance with the orders. The purpose of this safety evaluation is to document the strategies and implementation features that the licensee has committed to. Based on the evaluations above, the NRC staff concludes that the licensee has developed guidance and designs that, if implemented appropriately, should adequately address the requirements of Orders EA-12-049 and EA-12-051. The NRC staff will conduct an onsite inspection to verify

that the licensee has implemented the strategies and equipment to demonstrate compliance with the orders

May 23, 2018 - Letter dated May 23, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Exelon Generation Company, LLC, Peach Bottom Atomic Power Station unit 1 – NRC Inspection Report No. 05000171/2018001.

On May 7-9, 2018, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Peach Bottom Atomic Power Station Unit 1. The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and the conditions of your license. The inspection consisted of observations by the inspectors, interviews with personnel, and a review of procedures and records. The results of the inspection were discussed with Pat Navin, Site Vice President, and other members of your organization on May 9, 2018, at the conclusion of the inspection. The enclosed report presents the results of this inspection. No findings of safety significance were identified.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Med, Ind, & Academic Uses**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's website at www.nrc.gov; select **About NRC, Organizations &**

Functions; Office of Enforcement; Enforcement documents; then Enforcement Policy (Under 'Related Information'). You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC document system (ADAMS), accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>.

Executive summary of inspection report:

An announced safety inspection was conducted on May 7-9, 2018, at Unit 1. The inspectors reviewed activities related to the safe storage of radioactive material, including site operations, engineering, maintenance, fire protection, plant support activities, management oversight, and corrective action program (CAP) implementation. The inspection consisted of observations by the inspectors, interviews with Exelon personnel, a review of procedures and records, and plant walk-downs. The NRC's program for overseeing the safe operation of a shut-down nuclear power reactor is described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program." Based on the results of this inspection, no findings of safety significance were identified.

September 23, 2018 – WGAL News 8 story: Peach Bottom Atomic Power Station Unit 3 Offline For Maintenance.

The Peach Bottom nuclear power plant is located in southern York County. Operators removed Peach Bottom Atomic Power Station Unit 3 from service around 5 p.m. Saturday, to address a steam leak in the dry well. Officials say that technicians will make repairs and conduct inspections before returning the unit to service. Peach Bottom's Unit 2 is not impacted and continues to operate.

Peach Bottom Atomic Power Station is a dual-unit nuclear power plant located on the west bank of the Conowingo Pond (Susquehanna River) in York County, Pa. The station's two boiling water reactors are capable of powering more than 2.25 million homes and businesses. Both reactors began commercial operation in 1974.

November 15, 2018 - By letter dated November 15, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18150A387), Exelon Generation Company, LLC (EGC, the licensee) requested changes to the Technical Specifications (TSs) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, to allow continued operation with two Safety Relief Valves/Safety Valves (SRVs/SVs) out-of-service and to increase the Reactor Coolant System Pressure Safety Limit.

The Nuclear Regulatory Commission's (NRC) staff is reviewing the submittal and has determined that additional information is needed to complete its review. The specific request for additional information (RAI) is provided below. A clarification phone call was

held November 15, 2018. As a result of the call, the draft RAIs have been clarified. A response to these RAIs is requested by December 10, 2018.

By application, dated May 30, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18150A387), Exelon Generating Company, LLC submitted a License Amendment Request (LAR) for Peach Bottom Atomic Power Station, Units 2 and 3 (PBAPS). The proposed LAR would revise PBAPS Technical Specifications to allow continued operation with two Safety Relief Valves/Safety Valves (SRVs/SVs) out-of-service and to increase the Reactor Coolant System Pressure Safety Limit (SL).

RAI-SRXB-1: ASME Overpressure Analysis with New Reactor Pressure Safety Limit

Draft GDCs 9, 33 and final GDC 31 require overpressure protection during power operation be provided by relief/safety valves (SRVs/SVs) and protection system. The LAR proposed to raise a new reactor coolant system pressure safety limit so that the impact of the ASME overpressure analysis with 2 SRVOOS can be accepted. To facilitate the staff review, provide the following information associated with the analysis as provided in the LAR:

1. Peach Bottom technical specification bases 2.1.2 indicates the RCS pressure SL is selected to be the lowest transient overpressure allowed by the applicable codes. Please verify the locations for the peak vessel pressure as reported in Tables 1 and 2 of the LAR are consistent with the TS bases.
2. A verification of whether a TRACG statistical pressure adder had been applied to the peak vessel pressure as reported in the Tables 1 and 2 of LAR. Note that it is known that an adder will be applied to the peak steam dome pressure. However, it is not clear if an adder will also be applied to the peak vessel pressure to be reported. Provide justification if the TRACG statistical pressure adder is not applied,
3. Justify that if the steam dome pressure were to approach the proposed reactor steam dome limit of 1340 psig the corresponding peak vessel pressure will still be below the ASME limit of 1375 psig with margin.

November 21, 2018 - Letter dated November 21, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Peach Bottom Atomic Power Station – Information request for the cyber-security inspection, notification to perform inspection 05000277/2019403 and 05000278/2019403.

On April 1, 2019, the U.S. Nuclear Regulatory Commission (NRC) will begin a team inspection in accordance with Inspection Procedure 71130.10P, “Cyber-Security,” issued May 15, 2017, at your Peach Bottom Atomic Power Station (Peach Bottom), Units 2 and 3. 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 of the *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 April 1, 2019, and April 15, 2019. 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 January 4, 2019. The inspection team will review this information and, by February 1, 2019, 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 March 1, 2019.

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, April 1, 2019.

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 Eugene (Gene) DiPaolo. We understand that our regulatory contact for this inspection is Dan Dullum of your organization.

December 10, 2018 - Letter dated December 10, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Peach Bottom Atomic Power Station, Units 2 and 3 – issuance of relief request re: use of ASME code case N-513-4 in lieu of specific ASME code requirements (EPID L-2018-LLR-0039).

By application dated March 26, 2018 (Agency wide Documents Access and Management System Accession No. ML180868110), Exelon Generation Company, LLC (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for a proposed alternative, Relief Request 15R-07, to the requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, for the Peach Bottom Atomic Power Station (Peach Bottom), Units 2 and 3. The proposed alternative would allow the licensee to use ASME Code Case N-513-4, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," in lieu of specified ASME Code requirements.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10CFR) Section 50.55a(z)(2), the licensee requested to use the alternative on the basis that complying

with the specified requirement would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety.

The NRC staff has reviewed the subject request and finds that the proposed alternative provides a reasonable assurance of structural integrity of the moderate energy piping systems included in ASME Code Case N 513-4. The NRC staff finds that complying with the requirements of the ASME Code, Section XI, would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC authorizes the use of Relief Request 15R-07 to use ASME Code Case N 513-4 at Peach Bottom, Units 2 and 3, for the fifth 10-year inservice inspection interval, or until such time as the NRC approves ASME Code Case N-513-4 for general use through revision of Regulatory Guide 1.147, Revision 18, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1."

All other requirements of the ASME Code, Section XI, for which relief has not been specifically requested and authorized by NRC staff remain applicable, including a third party review by the Authorized Nuclear Inservice Inspector.

Conclusion of the safety evaluation:

As set forth above, the NRC staff finds that the proposed alternative provides a reasonable assurance of structural integrity of the subject components and that complying with IWC-3120, IWC-3130, IWD-3120, and IWD-3130 of the ASME Code, Section XI, would result in a hardship or unusual difficulty, without a compensating increase in the level of quality and safety. Accordingly, the staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2).

Therefore, the NRC authorizes the use of Relief Request ISR-07 to use Code Case N-513-4 at Peach Bottom, Units 2 and 3, for the fifth 10-year ISI interval, or until such time as the NRC approves Code Case N-513-4 for general use through revision of RG 1.147. If the proposed alternative is applied to a flaw near the end of the authorized 10-year ISI interval and the next refueling outage is in the subsequent interval, the licensee is authorized to continue to apply the proposed alternative to the flaw until the next refueling outage.

All other requirements of the ASME Code, Section XI, for which relief has not been specifically requested and authorized by NRC staff remain applicable, including a third-party review by the Authorized Nuclear Inservice Inspector.

December 13, 2018 - Letter dated December 13, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Errata for Peach Bottom Atomic Power Station – integrated inspection report 05000277/2018002 and 05000278/2018002 and independent spent fuel storage installation report 07200029/2018002.

The U.S. Nuclear Regulatory Commission (NRC) identified an omission in the original issuance of NRC Integrated Inspection Report 05000277/2018002 and

05000278/2018002 and Independent Spent Fuel Storage Installation Report 07200029/2018002, dated August 13, 2018 (ADAMS Accession No. ML18225A086). Specifically, the inspection report inadvertently omitted the completion of four samples in the Radiation Safety section pertaining to Inspection Procedure 71124.04, "Occupational Dose Assessment." As a result, the NRC is reissuing the report in its entirety to correct this omission. The necessary corrections are reflected in the enclosed revised report.

Inspection Report – Inspection dates April 1, 2018 to June 30, 2018

List of Findings and Violations:

1. Failure to identify and promptly correct a condition adverse to quality concerning battery charger 2B-003-1
 - a. The NRC identified a Green non-cited violation (NCV) of 10 *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not identify and promptly correct a condition adverse to quality (CAQ) commensurate with its safety significance concerning the 2BD-003-1 safety-related battery charger. Specifically, Exelon did not appropriately prioritize repairs for a CAQ and, as a result, the 2BD-003-1 battery charger failed to operate when placed in service on June 5, 2018.
 - b. Peach Bottom has two independent safety-related 125/250 VDC systems per unit. Each system is comprised of two 125 V batteries, each with its own charger panel consisting of two 100 percent chargers. The safety-related chargers are full wave, silicon controlled rectifiers, suitable for float charging the lead-calcium battery at 2.25 V per cell, and supplying an equalizing charge at 2.33 V per cell. The chargers operate from 480 V, 3 phase, 60 Hz sources supplied from separate 480 V motor control centers and are capable of carrying the normal DC system load and, at the same time, supplying charging current to keep the batteries in a fully charged condition.
 - c. On March 5, 2018, IR 4111441 was initiated for Exelon to investigate and troubleshoot a fan failure alarm of the 2BD-003-1 battery charger under Work Order (WO) 4755435. The IR was placed on Exelon's priority work list (PWL) and operators swapped in-service battery chargers to the 2BD-003-2 charger in preparation to conduct troubleshooting on the 2BD-003-01 charger. During the troubleshooting for the fan failure alarm, Exelon's fix-it-now (FIN) department observed a separate condition; the battery fail alarm light was lit when the battery was placed in-service but unloaded.
 - d. IR 4116697 was initiated and closed to WO 4755435 to investigate the new issue concerning the lit 2BD-003-01 fail light. Exelon installed a recorder to obtain data on the 2BD-003-1 while in service before swapping back to the 2BD-003-2 to remain in-service. The recorder data was reviewed for both unloaded and full load battery service. IR 4116697 documents that under full load service, the 2BD-003-1 showed no abnormalities in the recorder traces and that the battery fail light extinguished when load was placed on the charger. The IR recommended no additional actions and concluded that the condition was being worked under and could be closed to WO 4755435. Subsequently, the 2BD-003-1 issue was removed from the PWL.

- e. However, after March 19, 2018, during review of the in-service unloaded traces identified during troubleshooting, FIN identified that the frequency reading on the silicon-controlled rectifier (SCR) bus was 180 Hz as opposed to the expected 360 Hz. FIN also observed that the gate pulses originating from the negative gate SCR driver board were approximately half the amplitude of the positive driver board, and consequently half the amplitude of what would be expected pulses from the negative board. Additionally, FIN observed that the fail light returned to being lit when the battery was unloaded. Following the troubleshooting, FIN concluded that the negative SCR gate driver board and/or the connectors on the harness of the driver board were degraded. FIN initiated a material request on April 3, 2018, to the station warehouse to obtain an in-stock negative gate SCR driver board for replacement. The inspectors identified that this new information that FIN had noted was not documented in a new IR, nor added to the existing IR 4116697, nor documented in the WO completion notes, but only kept on an unofficial record by the FIN lead technician. Therefore, Exelon missed the opportunity to place the issue back on their PWL, to evaluate the risk of a degraded negative SCR gate driver board, and to have work control assign a due date commensurate with Exelon's Procedure WC-AA-106, Attachment 1, Revision 18, "Priority Screening Matrix." Considering the part was in stock and work could be performed while 2BD-003-01 was not in- service, the inspectors determined it was reasonable for Exelon to have repaired the degraded condition before the condition worsened or the charger was placed back into service.
 - f. On June 5, 2018, Exelon attempted to place the 2BD-003-01 battery charger in service; however, voltage could not be maintained at 130 VDC. Exelon secured 2BD-003-01, entered Technical Specification (TS) 3.8.4, which required restoration of the Unit 2 DC electrical power subsystem within 2 hours and then to be in Mode 3 within 12 hours. Exelon subsequently placed the 2BD-003-02 battery charger in-service, and exited TS 3.8.4. IR 4144546 was then initiated and troubleshooting recommenced to determine why there was insufficient DC output on 2BD-003-01. Exelon determined that the negative SCR gate driver board had failed rendering 2BD-003-01 inoperable. The negative SCR gate driver board was replaced with the in-stock driver board, the battery charger was tested satisfactorily, and was returned to an operable status with no abnormalities being identified. Exelon subsequently captured the inspectors concerns regarding CAP documentation and prioritization in IR 4149360 written on June 21, 2018.
 - g. Corrective Actions: Exelon replaced the negative SCR gate driver board and restored the charger. Additionally, Exelon initiated IR 4149360 to address advocating an earlier repair window, communicating troubleshooting results in a formal manner to other departments (operations, work control, maintenance), and ensuring troubleshooting results are documented in a quality record.
 - h. Corrective Action Reference: IR 4149360
2. On July 13, 2018, the inspectors presented the quarterly resident inspector inspection results to Mr. Matthew Herr, Plant Manager, and other members of the Exelon staff.

December 21, 2018 - Letter dated December 21, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Peach Bottom Atomic Power Station, units 2 and 3 – issuance of relief request RE: use of ASME code case N-513-3 in lieu of specific ASME code requirements (EPID L-2018-LLR-0040).

By application dated March 26, 2018 (Agencywide Documents Access and Management System Accession No. ML18086B110), Exelon Generation Company, LLC (the licensee) submitted two relief requests (I5R-07 and I5R-08) to the U.S. Nuclear Regulatory Commission (NRC) for proposed alternatives to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, for the Peach Bottom Atomic Power Station (Peach Bottom), Units 2 and 3. Relief Request I5R-08 proposed an alternative to allow the licensee to use ASME Code Case N-513-3, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," in lieu of specified ASME Code requirements. (By letter dated December 10, 2018 (ADAMS Accession No. ML18327A062), the NRC authorized the proposed alternative, Relief Request I5R-07.)

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z)(2), the licensee requested to use the alternative on the basis that complying with the specified requirement would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety.

The NRC staff has reviewed the subject request and finds that the proposed alternative provides a reasonable assurance of structural integrity of the moderate energy piping systems included in ASME Code Case N-513-3. The NRC staff finds that complying with the requirements of the ASME Code, Section XI, would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC authorizes the use of Relief Request I5R-08 to use ASME Code Case N-513-3 at Peach Bottom, Units 2 and 3, for the fifth 10-year inservice inspection interval.

All other requirements of the ASME Code, Section XI, for which relief has not been specifically requested and authorized by the NRC staff remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Introduction of report:

By application dated March 26, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18086B110), Exelon Generation Company, LLC (the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for a proposed alternative, Relief Request I5R-08, to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, for the Peach Bottom Atomic Power Station (Peach Bottom), Units 2 and 3. The proposed alternative would allow the licensee to use ASME Code Case N-513-3, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1," in lieu of specified ASME Code requirements.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z)(2), the licensee requested to use the alternative ASME Code Case N-513-3 to temporarily accept degraded piping on the basis that complying with the specified ASME Code requirement to repair the degraded piping would result in hardship or unusual difficulty, without a compensating increase in the level of quality and safety.

Conclusion of report:

As set forth above, the NRC staff finds that the proposed alternative provides a reasonable assurance of structural integrity of the subject components, and that complying with IWD-3130 of the ASME Code, Section XI, would result in a hardship or unusual difficulty, without a compensating increase in the level of quality and safety. Accordingly, the staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC authorizes the use of Relief Request I5R-08 to use ASME Code Case N-513-3 at Peach Bottom, Units 2 and 3, for the fifth 10-year ISI interval.

All other requirements of the ASME Code, Section XI, for which relief has not been specifically requested and authorized by NRC staff remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

December 21, 2018 - Letter dated December 21, 2018, the Nuclear Regulatory Commission issued a letter to Senior Vice President, Bryan Hanson of Exelon Generation Company with the subject of: Peach Bottom Atomic Power Station, Units 2 and 3 – issuance of alternative requests related to the fifth inservice inspection interval (EPID L-2018-LLR-0055, EPID L-2018-LLR-0057, EPID L-2018-LLR-0058 and EPID L-2018-LLR-0059).

By letter dated April 19, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18109A116), as supplemented by letters dated July 31, 2018; September 6, 2018; and November 28, 2018 (ADAMS Accession Nos. ML18109A116, ML18250A068, and ML18337A196, respectively), Exelon Generation Company, LLC (Exelon, the licensee) submitted relief requests to the U.S. Nuclear Regulatory Commission (NRC). Exelon proposed alternatives to certain inservice inspection requirements of the American Society of Mechanical Engineers Boiler & Pressure Vessel Code (ASME Code) for the Peach Bottom Atomic Power Station (Peach Bottom), Units 2 and 3 pursuant to Title 10 of the *Code of Federal Regulations* Section 50.55a(z).

Exelon submitted the following relief requests:

1. I5R-02 – Examination of Inaccessible Surfaces
2. I5R-03 – Use of BWRVIP [Boiling Water Reactor Vessel and Internals Project]

Guidelines

3. I5R-04 – Alternative Nozzle-to-Vessel Weld and Inner Radii Examination
4. I5R-05 – Encoded Phases Array Ultrasonic Examination Techniques
5. I5R-06 – Examination Category B-G-1 Item No. B6.40 Threads in Flange

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(z)(1), the NRC staff concluded, in the enclosed safety evaluation, that Relief Requests I5R-04, I5R-05, and I5R-06 are authorized on the basis that the proposed alternatives provide an acceptable level of quality and safety. The subject relief requests are for the fifth 10-year interval of the inservice inspection program at Peach Bottom, Units 2 and 3, which begins on January 1, 2019, and is currently scheduled to end on December 31, 2028.

Pursuant to 10 CFR 50.55a(z)(2), the NRC staff concluded, in the enclosed safety evaluation, that Relief Request I5R-02 is authorized on the basis that the proposed alternative provides a reasonable assurance of an acceptable level of quality and safety for the subject welds and has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). The NRC staff finds that, provided the requirements from which relief is requested in I5R-02 stay the same after the fifth inservice inspection interval (third containment inservice inspection) and for the remaining term of the Peach Bottom Renewed Facility Operating Licenses, compliance with such requirements will continue to be a hardship, and the performance of the integrated leak rate testing will continue to provide reasonable assurance of structural integrity and leaktightness for the primary containment drywell penetration N-3.

By letter dated July 18, 2018 (ADAMS Accession No. ML18179A394), NRC authorized the proposed alternative Relief Request I5R-03.

Safety Evaluation Introduction:

By letter dated April 19, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18109A116), as supplemented by letters dated July 31, 2018; September 6, 2018; and November 28, 2018 (ADAMS Accession Nos. ML18109A116, ML18250A068, and ML18337A196, respectively), Exelon Generation Company, LLC (Exelon, the licensee) submitted requests to the U.S. Nuclear Regulatory Commission (NRC). Exelon proposed alternatives to certain inservice inspection (ISI) requirements of the American Society of Mechanical Engineers Boiler & Pressure Vessel Code (ASME Code) for the Peach Bottom Atomic Power Station (Peach Bottom), Units 2 and 3.

Safety Evaluation Conclusion:

the NRC staff finds that the proposed alternative for I5R-04 provides a reasonable assurance of structural integrity of the subject welds and that complying with Code Cases N-702 and N-648-1 of the ASME Code, Section XI, provides an acceptable level of quality and safety. Additionally, the NRC staff concludes that the licensee's proposed alternative I5R-05 to use UT in lieu of RT using encoded PAUT provides reasonable assurance of structural integrity and leaktightness of Class 1 and 2 ferritic piping welds. Thus, UT, using the procedure described in the submittal of the subject welds, would provide an acceptable level of quality and safety. Also, the NRC staff determines that proposed alternative I5R-06 provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

For I5R-02, the NRC staff has reviewed the proposed alternative, and concludes that the alternative proposed by the licensee in Relief Request I5R-02 to use ILRTs (Type A tests) in lieu of compliance with the IWE-1232(a) ASME Code requirements would result in a hardship or unusual difficulty, without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(z)(2). The NRC staff finds that there is reasonable assurance that the integrity of both containments and their respective penetration N-3 remains intact. The staff finds that, provided the requirements from which relief is requested in I5R-02 stay the same after the fifth ISI interval (third CISI) and for the remaining term of the Peach Bottom RFOLs, compliance with such requirements will continue to be a hardship, and the performance of the ILRTs will continue to provide reasonable assurance of structural integrity and leaktightness for the primary containment drywell penetration N-3.

Therefore, the NRC staff authorizes the use of Relief Requests I5R-02, I5R-04, I5R-05, and I5R-06 at Peach Bottom, Units 2 and 3, for the affected components. The fifth ISI interval for Peach Bottom, Units 2 and 3, is currently scheduled to begin on January 1, 2019, and end on December 31, 2028.

All other requirements of the ASME Code, Section XI, for which relief has not been specifically requested and authorized by the NRC staff remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

January 25, 2019 – In an email dated January 25, 2019 from Jennifer Tobin (Project Manager, NRR/DORL/LPL-1) to David Helker with the subject of: Peach Bottom Units 2 and 3 – Request for additional information – Secondary containment LAR (EPID L-2018-LLA-0264)

REQUEST FOR ADDITIONAL INFORMATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION
FOR A LICENSE AMENDMENT REQUEST TO REVISE THE APPLICABILITY OF
FUNCTIONS 3 AND 4 IN TECHNICAL SPECIFICATIONS 3.3.6.2 EXELON
GENERATION COMPANY LLC
PEACH BOTTOM ATOMIC POWER STATION UNITS 2 AND 3 DOCKET NUMBERS
50-277 AND 50-278
ENTERPRISE PROJECT IDENTIFIER L-2018-LLA-0264

By letter dated September 27, 2018 (Accession No. ML18271A009), Exelon Generation Company, LLC requested to change technical specifications for Peach Bottom Atomic

Power Station Units 2 and 3. The proposed change would modify TSs to help alleviate scheduling difficulties associated with reactor building and refueling floor ventilation system.

The Nuclear Regulatory Commission's (NRC) staff is reviewing your submittal and has determined that additional information is needed to complete its review. The specific request for additional information (RAI) questions are provided below. These questions are being sent to ensure that the questions are understandable, the regulatory basis for the questions is clear, and to determine if the information was previously docketed. A

clarification phone call to discuss the draft RAIs was held January 24, 2019, and both RAIs were clarified as a result of the call. A 30-day response time was agreed upon so please provide your response to the RAIs by February 25, 2019.

By letter dated September 27, 2018, Exelon Generation Company LLC, the licensee, proposes to change technical specifications for Peach Bottom Atomic Power Station Units 2

and 3 (Peach Bottom). The proposed change would modify the applicability for technical specifications 3.3.6.2, functions 3 and 4. Specifically, function 3 (reactor building ventilation exhaust radiation - high) would be revised to only be required when function 4 (refueling floor ventilation exhaust radiation - high) is not maintained, and function 4 would be revised to only be required when function 3 is not maintained. Additionally, this change clarifies which standby gas treatment (SGT) subsystems are required to be put into operation or declared inoperable as described in TS 3.3.6.2 condition C for required actions C.2.1 and C.2.2.

During the Nuclear Regulatory Commission (NRC) staff's review of the license amendment request, the NRC staff determined that more information was needed to complete the review.

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.67, "Accident Source Term," allows licensees seeking to revise their current accident source term in design basis radiological consequence analyses to apply for a license amendment under § 50.90. The application shall contain an evaluation of the consequences of applicable design basis accidents previously analyzed in the safety analysis report. Section 50.67(b)(2) requires that the licensee's analysis demonstrates with reasonable assurance that:

1. (i) An individual located at any point on the boundary of the exclusion area for any 2-hour period following the onset of the postulated fission product release, would not receive a radiation dose in excess of 0.25 Sv (25 rem) total effective dose equivalent (TEDE).
2. (ii) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage), would not receive a radiation dose in excess of 0.25 Sv (25 rem) TEDE.
3. (iii) Adequate radiation protection is provided to permit access to and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 0.05 Sv (5 rem) TEDE for the duration of the accident.

10 CFR 50.36, "Technical Specifications," in part, requires that the technical specifications be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto and includes items in following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) limiting

conditions for operation; (3) surveillance requirements; (4) design features; (5) administrative controls; (6) decommissioning; (7) initial notifications; and (8) written reports.

In the license amendment request the licensee determined that it is acceptable to revise TS 3.3.6.2 functions 3 and 4 applicability as described above in section 2.0 as long as the refuel floor hatch plug remains removed and no other physical obstruction seals the air flow path between the refuel floor and the reactor building. The licensee stated that the absence of the refuel floor hatch cover allows air flow in the spaces between the reactor building and the refuel floor and that for a design basis accident where excessive

radioactive material is released into secondary containment, airborne radioactivity will be drawn down and detected at either the refuel floor exhaust radiation monitors or the reactor building exhaust radiation monitors (whichever set is not isolated) to provide a valid secondary containment isolation signal. The NRC staff agrees that the reactor building and refuel floor air spaces allow air flow when the refuel floor hatch plug is removed. While in this condition, both the refuel floor ventilation exhaust radiation monitor and reactor building ventilation exhaust radiation monitor are able to generate a high radiation secondary containment isolation signal if there is a mechanism to ensure mixing between the reactor building and refuel floor. However, the license amendment request did not discuss if there is a mechanism available in all conditions i.e., normal operations and during a loss of offsite power, to ensure mixing between the reactor building and refuel floor air spaces.

The licensee proposed the addition of footnote (c) to the applicability for TS 3.3.6.2 function 3, *Reactor Building Ventilation Exhaust Radiation – High*, and footnote (d) to the applicability for TS 3.3.6.2 function 4, *Refueling Floor Ventilation Exhaust Radiation - High*. Footnote (c) would state:

Function is only applicable if Function 4 isolation capability is not maintained. Footnote (d) would state:

Function is only applicable if Function 3 isolation capability is not maintained.

The NRC staff reviewed the proposed TS wording to ensure that the allowance of reducing the required functions to either the reactor building ventilation exhaust radiation function or the refuel floor ventilation exhaust radiation function is only allowed when the refuel floor plug is removed. The proposed TS wording doesn't appear to be limited to when the refuel floor plug is removed and seems to allow reducing the required functions even if the refuel floor plug is installed.

Additionally, the proposed footnotes are worded such that neither function is required by TS 3.3.6.2 during their applicable modes or other specified conditions if isolation capability is maintained. The proposed footnotes seem to essentially negate the requirements for the functions in modes 1, 2, 3 and during movement of recently irradiated fuel assemblies in secondary containment when isolation capability is maintained for both functions.

Because the proposed change to TS 3.3.6.2 is not limited to when the refuel floor plug is removed and essentially seems to negate the function 3 and 4 requirements when

isolation capability is maintained for both functions, a revision to the proposed TS change is necessary or a technical evaluation discussing these aspects is needed.

RAI-1

Provide a discussion that explains if there is a mixing mechanism available during all conditions assumed in the licensing basis (i.e., normal operations, during a loss of offsite power, etc.), to ensure mixing between the reactor building and refuel floor air spaces.

In addition, discuss any impacts on the current licensing basis that may result from the mixing and transporting mechanisms with respect to the detector response times for the refuel floor ventilation exhaust and reactor building ventilation exhaust radiation detectors.

This clarification applies to response time delay when the radiation monitor in that affected area is not available and the radiation monitor in the other area is in operation.

RAI-2

Provide a revision to the proposed TS 3.3.6.2 footnotes such that the footnote is: (1) dependent on the refuel floor hatch plug being removed, and (2) identifies that at least one function must be operable during their applicable modes or other specified conditions, either the reactor building ventilation exhaust radiation instrumentation or the refueling floor ventilation exhaust radiation instrumentation, or,

Provide a technical basis for removing these functions from TS 3.3.6.2.