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Andrew J. Hartman,

Director, NIFL.

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NUCLEAR REGULATORY COMMISSION

Report to Congress on Abnormal Occurrences Fiscal Year 1997 Dissemination of Information

Section 208 of the Energy Reorganization Act of 1974 (Pub. L. 93-438) identifies an abnormal occurrence (AO) as an unscheduled incident or event that the Nuclear Regulatory Commission (NRC) determines to be significant from the standpoint of public health or safety. The Federal Reports Elimination and Sunset Act of 1995 (Pub. L. 104-66) requires that AOs be reported to Congress on an annual basis. During fiscal-year 1997, six events that occurred at facilities licensed or otherwise regulated by the NRC and the Agreement States were determined to be AOs. These events are discussed below. As required by Section 208, the discussion for each event includes the date and place, the nature and probable consequences, the cause or causes, and the action taken to prevent recurrence. Each event is also being described in NUREG-0090, Vol. 20, "Report to Congress on Abnormal Occurrences, Fiscal Year 1997." This report will be available at NRC's Public Document Room, 2120 L Street N.W. (Lower Level), Washington, D.C., about three weeks after the publication date of this **Federal Register** Notice.

97-1 Loss of Two of Three High Pressure Injection Pumps at Oconee Nuclear Station Unit 3

One of the AO reporting criteria notes that a major deficiency in design, construction, control, or operation having significant safety implications requiring immediate remedial action can be considered an AO.

Date and Place—May 3, 1997; Oconee Unit 3, a pressurized water nuclear reactor plant designed by Babcock and Wilcox Company, operated by the Duke Energy Corporation (formerly known as Duke Power Company), and located about 8 miles north of Clemson, South Carolina.

Nature and Probable Consequences—On May 3, 1997, the Oconee Unit 3 reactor was shut down and the reactor coolant system (RCS) was being cooled down for inspection of the high pressure injection (HPI) discharge piping. The need for the inspection resulted from RCS leakage from a weld crack in the HPI makeup piping on Unit 2. Reactor pressure was approximately 270 psig, RCS temperature was approximately 205° F, one reactor coolant pump (RCP) was running, and the Low Pressure Injection System was being used to cool down the RCS. Makeup water to the RCS to compensate for the temperature decrease was being supplied from the letdown storage tank (LDST) by one of the three HPI pumps. Makeup to the LDST consisted of periodic batch additions as needed. These plant conditions were below the point where the technical specifications required that the HPI system must be operable; that is, required to mitigate a small-break loss-of-coolant accident.

Plant cool-down evolutions appeared to be normal until the "B" HPI pump started to cavitate and makeup flow to the reactor coolant system was lost. A RCP seal water (which is also supplied by the HPI pump) low-flow signal automatically started the "A" HPI pump. However, it also began to cavitate. (The third HPI pump is not designed to automatically start on this signal and remained in the standby condition.) The operators stopped both pumps and began troubleshooting the problem. A Notification of Unusual Event was declared when it was recognized that the pumps would be inoperable past the shift that was on duty. Unit 3 pressure and temperature were stabilized and there was no immediate concern that conditions would worsen.

Later investigations revealed that the potential for a more serious situation existed if there had been a small break loss-of-coolant accident, which is the

design basis for the HPI system, prior to this event. If such an accident had occurred, all three of the HPI pumps would have automatically started and become inoperable very quickly. In addition, the pumps may have become air bound and unavailable when the pump suction was transferred to the Borated Water Storage Tank to inject into the RCS. This would have significantly complicated recovery from the accident, but would have been within the Emergency Operating Procedure guidance and training provided to the operators. It would, however, increase the probability of core damage. The length of time that Unit 3 was in this degraded status could not be accurately determined, but the condition may have existed since start-up in March 1997, when plant conditions required that the HPI system be operable.

Cause or Causes—Loss of the HPI pumps occurred when all of the water was inadvertently pumped from the LDST because of faulty level indication. The erroneous level indication was caused by the loss of approximately one-half of the water in the level detector reference leg because of a slight leak in the instrument fitting. This loss of the reference leg water caused the tank level instrument to indicate a water level higher than the actual level, a condition that may have existed since February 1997, the last time the reference leg was verified to be full. It also caused the loss of the low-level alarm. As a result of these conditions, the operators did not provide makeup water to the tank when it was needed, resulting in the HPI pump continuing to run until the tank was empty. The LDST level detection system consists of two level instruments connected to a common reference leg. Thus, the condition affected both level detectors equally.

In addition, the control room operators did not properly monitor and detect the inaccurate LDST level indications. They did not notice that for a short period of time the indicated level stopped decreasing and continuously showed the tank to be approximately half-full at the same time water was being pumped from the tank.

Actions Taken to Prevent Recurrence

Licensee—Corrective actions included (1) the addition of a second reference leg to the LDST to provide separate level indications, (2) enhanced operator training and procedures, and (3) the performance of an HPI System Reliability Study that is to be completed by December 31, 1997.

NRC—Escalated enforcement, which incorporated this issue, resulted in the determination that a Severity Level II violation existed, and the licensee was assessed a \$330,000 civil penalty. Information Notice 97-38, "Level-Sensing System Initiates Common-Mode Failure of High-Pressure-Injection Pumps," was issued on June 24, 1997, to alert other licensees to this event.

This event is closed for the purpose of this report.

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Other NRC Licensees—(Industrial Radiographers, Medical Institutions, Industrial Users, etc.)

97-2 Overexposure of a Worker at Mallinckrodt, Inc., in Maryland Heights, Missouri

One of the AO criteria notes that any unintended radiation exposure to an adult (any individual 18 years of age or older) resulting in an annual shallow-dose equivalent to the skin or extremities of 2500 mSv (250 rem) or more will be considered for reporting as an AO.

Date and Place—May 14-15, 1997; Mallinckrodt, Inc.; Maryland Heights, Missouri.

Nature and Probable Consequences—On May 14, 1997, an employee was removing radioactive waste from the hot cell where rhenium-186 (Re-186) was used. The employee was performing this task manually, using gloves, instead of remotely. When he left the area, he attempted to perform a personal contamination survey but the survey meter immediately went off the scale. He assumed that the high count rate was due to background radiation from an adjacent radioactive material transport cart and, subsequently, forgot to resurvey himself in a low background area before he left the facility that evening. Upon arrival at work the next day, he was told that his urine sample, which he had submitted before going home the previous night, indicated iodine-131 (I-131) radiation contamination and that he was restricted from working with radioactive material. At that time, he performed a personal contamination survey and detected significant levels of contamination on his left thumb which subsequently was identified as Re-186. The I-131 contamination level did not exceed the AO criteria for exposure to radiation from licensed material.

The licensee estimates that the individual received a shallow-dose equivalent of 6090 millisievert (609 rem) to an area of about 0.75 square centimeters (0.12 square inches) on the palm side of the thumb of his left hand.

Lower levels of contamination were found on the back of his right hand and fingers. On May 15, 1997, the employee had undergone decontamination to the extent that only approximately 4 percent of the activity remained.

The licensee surveyed the offsite locations where the employee had been after leaving work on May 14, 1997. Low levels of Re-186 contamination were found on three locations inside the employee's vehicle and on various items in the bathroom and kitchen of his home. The employee's vehicle and home were decontaminated. The employee was examined by a physician who identified no immediate health effects. However, according to a report from an NRC consultant, a small possibility exists for skin cancer to develop in the exposed area of the thumb.

Cause or Causes—The cause of the event was a procedural deficiency in handling waste from the Re-186 hot cell. Normally, radioactive waste in other hot cells at the facility was handled with remote tools. However, in this case, procedural controls did not require remote handling of the waste. Once the employee completed the work, poor radiation work practices were exhibited as he cross-contaminated his hands when he removed his gloves. In addition, the worker did not investigate the detection of high count rates during his first attempt to perform a contamination survey.

Actions Taken to Prevent Recurrence

Licensee—The staff was instructed on the importance of conducting proper personal contamination surveys and the proper use of protective clothing. The use of Re-186 was suspended until improvements to existing waste disposal procedures could be evaluated and implemented. Plans were made (1) to compile all existing contamination protection procedures into one contamination protection procedure, (2) to evaluate the use of a portal type monitoring system, and (3) to post personal-monitoring reminder signs at all laboratory exits.

NRC—NRC conducted a special safety inspection, proposed a \$55,000 civil penalty on December 17, 1997, and the licensee paid the civil penalty on January 20, 1998.

This event is closed for the purpose of this report.

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Agreement State Licensees

AS 97-1 Multiple Transuranic Overexposures to a Worker at Isotope Products Laboratories in Burbank, California

One of the AO criteria notes that any unintended radiation exposure to an adult (any individual 18 years of age or older) resulting in an annual total effective dose equivalent (TEDE) of 250 millisievert (mSv) (25 rem) or more; or an annual sum of the deep dose equivalent (DDE) (external dose) and committed dose equivalent (CDE) (intake of radioactive material) to any individual organ or tissue other than the lens of the eye, bone marrow, and the gonads of 2500 mSv (250 rem) or more will be considered for reporting as an AO. In addition, another AO criterion states that a serious deficiency in management or procedural controls in major areas will be considered for reporting as an AO.

Date and Place—Between January 1 and December 31, 1995; Isotope Products Laboratories; Burbank, California.

Nature and Probable Consequences—A radiochemist was assigned to make transuranic and other types of sources. The transuranics utilized included the isotopes of plutonium-238 (Pu-238), Pu-239, Pu-240, americium-241 (Am-241), and curium-244 (Cm-244). During January 1995, while making a Cm-244 source, it was discovered that the exhaust fan of the fume hood where the source was being fabricated was not working. An analysis of room air samples confirmed the loss of Cm-244 into the working area.

Bioassay results disclosed that the fecal and urine samples provided by the radiochemist contained Cm-244 and Am-241. The licensee hired dosimetry and radiation protection consultants as directed by the State Agency. Careful analysis of the bioassay data by these consultants, which included dose summation and retrospective time correction for various intakes, suggested that during 1995 the radiochemist received a TEDE of 383.20 mSv (38.32 rem) and a CDE of 6900 mSv (690 rem) to the bone surfaces. The specific exposures were as follows: (1) committed effective dose equivalent (CEDE) of 271.8 mSv (27.18 rem) from Cm-244, (2) CEDE of 80 mSv (8 rem) from Am-241, (3) CEDE of 4.4 mSv (0.44 rem) from Pu-238, Pu-239, and Pu-240, and (4) DDE of 27.0 mSv (2.70 rem) from external radiation.

The State Agency discovered this incident during a routine inspection on December 5, 1995, and was initially reported to NRC in January 1996. During

a follow-up inspection, the State Agency learned that another Cm-244 incident took place and was significant. The State Agency also learned of other exposure incidents that indicated the licensee had a deficient contamination control program, an inability to conduct internal dose assessments, and inadequate management oversight. The State provided additional information on these events to NRC in 1997.

Cause or Causes—The licensee's radiation protection program was inadequate and lacked important elements needed to ensure the radiation safety of its workers. Some of these inadequacies were the lack of (1) work permits, (2) glove boxes for certain types of work, and (3) radiation procedural controls.

Actions Taken To Prevent Recurrence

Licensee—After the licensee's consultants conducted their review and comprehensive audit of the existing radiation protection program, they made recommendations to ensure future compliance with the license and regulations. The licensee hired a competent radiation safety officer, and the radiochemist was assigned duties that did not involve the handling or processing of radioactive materials.

State Agency—The State Agency completed its investigation and is committed to closely tracking the licensee's radiation protection program to ensure continued compliance.

This event is closed for the purpose of this report.

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AS 97-2 Overexposure of a Radiographer and an Untrained Technician at Wolf Creek Mine in Walker County, Alabama

One of the AO criteria notes that any unintended radiation exposure to an adult (any individual 18 years of age or older) resulting in an annual total effective dose equivalent (TEDE) of 250 millisievert (mSv) (25 rem) or more; or an annual sum of the deep dose equivalent (DDE) (external dose) and committed dose equivalent (CDE) (intake of radioactive material) to any individual organ or tissue other than the lens of the eye, bone marrow, and the gonads of 2500 mSv (250 rem) or more will be considered for reporting as an AO. In addition, another AO criterion states that a serious deficiency in management or procedural controls in major areas will be considered for reporting as an AO.

Date and Place—July 1, 1996; Wolf Creek Mine, Walker County, Alabama.

Nature and Probable Consequences—A radiographer, employed by Certified

Testing and Inspection of Cottondale, Alabama, and a technician, employed by Ultron, Inc., of Mt. Vernon, Illinois, were performing industrial radiography at the Wolf Creek Mine in Walker County, Alabama, when they became so distracted by problems with excessively exposed film that they forgot they had an exposure in progress and entered the high radiation area without making a survey and changed the film with the source in the unshielded exposed position. The radiographer had received prior radiation safety training, however, the technician, an employee of Ultron, Inc., had not received prior radiation safety training. The radiography film and the device used to support the source and the film during exposures were being supplied to the radiographer by Ultron, Inc.

Consequently, both individuals received unintended radiation exposure. The State Agency estimated that the radiographer received a dose of 530 millisievert (mSv) (53 rem) to his head and 48 mSv (4.8 rem) to the center of his body and the Ultron, Inc., technician received a dose of 110 mSv (11 rem) to his head and 28 mSv (2.8 rem) to the center of his body. Neither individual reported any acute radiation symptoms.

The radiography film supplied by Ultron, Inc., had faster and different exposure characteristics than the film usually used by Certified Testing and thus was being overexposed during processing in the darkroom. The darkroom, which was supplied by Certified Testing, utilized a homemade "safe light," which had been made a safe light by the application of red spray paint. The radiographer did not realize beforehand that the light would not be "safe" for the film supplied by Ultron, Inc.

Cause or Causes—The radiographer entered a designated high radiation area with his alarm ratemeter turned off and without following his normal practice of cranking in the source and surveying the guide tube and camera. The radiographer interpreted the silence from the alarm ratemeter as an indication of safe conditions. Unfortunately, when turned off, the alarm ratemeter gives the same indication as it does when indicating safe conditions. In addition, the radiographer did not utilize a collimator to reduce the exposure to himself and the Ultron, Inc., technician.

Actions Taken To Prevent Recurrence

Licensee—The licensee stated that the radiographer did not develop any symptom of acute radiation exposure and that its personnel were reinstructed in the importance of performing surveys

and using a collimator. The licensee committed to the State Agency to verify the training of all technicians, including those of the company that hires the licensee to perform radiography.

State Agency—The State Agency cited the Licensee for the following four violations: (1) excessive exposure to a radiation worker, (2) excessive exposure to a member of the public (the Ultron, Inc., technician representative), (3) failure to prevent unauthorized entry into the High Radiation Area, and (4) failure to exercise ALARA by using a collimator. A civil penalty was considered but not imposed. The State Agency recommended that both individuals contact the State and seek medical attention if any symptoms of acute exposure should appear.

This event is closed for the purpose of this report.

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AS 97-3 Radiopharmaceutical Misadministration at Mad River Community Hospital in Arcata, California

One of the AO criteria states that a medical misadministration that results in a dose that is equal to or greater than 10 gray (Gy) (1000 rad) to any organ (other than a major portion of the bone marrow, to the lens of the eye, or to the gonads) and represents a dose or dosage that is at least 50 percent greater than that prescribed in a written directive will be considered for reporting as an AO.

Date and Place—February 28, 1996; Mad River Community Hospital; Arcata, California. The State initially reported this event to NRC in December 1996.

Nature and Probable Consequences—A patient was prescribed a dosage of 3.7 megabecquerel (MBq) (0.1 millicurie [mCi]) of iodine-131 (I-131) for a thyroid scan and uptake procedure. However, the patient was administered a dosage of 262.7 MBq (7.1 mCi) of I-131. As a result, the patient's thyroid received a dose of about 9100 centigray (cGy) (9100 rad), instead of the prescribed dose of 130 cGy (130 rad).

The licensee stated that such a dose may induce a hypothyroid state requiring the patient to take thyroid hormone.

Cause or Causes—The wrong dosage was administered on the assumption that the patient was prescribed a whole body thyroid scan for a cancer metastatic disease evaluation.

Actions Taken To Prevent Recurrence

Licensee—Procedures for scheduling a whole body scan for thyroid cancer metastases were revised to include a detailed patient preparation and history.

The revised procedures required that the approving radiologist sign the I-131 administration policy before ordering a radiopharmaceutical. In addition, the nuclear medicine technologist attended a continuing education program at San Francisco General Hospital, which included a segment on the effects of studies involving therapy dosages.

State Agency—The State Agency conducted numerous follow-up inspections to ensure that the licensee's actions taken to prevent recurrence had been implemented.

This event is closed for the purpose of this report.

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AS 97-4 Radiopharmaceutical Misadministration at Tuomey Regional Medical Center in Sumter, South Carolina

One of the AO criteria notes that a medical misadministration that results in a dose that is equal to or greater than 10 gray (Gy) (1000 rad) to any organ (other than a major portion of the bone marrow, to the lens of the eye, or to the gonads) and represents a dose or dosage that is at least 50 percent greater than that prescribed in a written directive will be considered for reporting as an AO.

Date and Place—December 11, 1996; Tuomey Regional Medical Center; Sumter, South Carolina.

Nature and Probable Consequences—A patient was prescribed a dosage of 74 megabecquerel (MBq) (2.0 millicurie [mCi]) of iodine-131 (I-131) for a treatment of Graves disease. However, the patient was administered a 388.5 MBq (10.5 mCi) dosage of I-131. As a result, the patient's thyroid received a dose of 40,400 centigray (cGy) (40,400 rad) instead of the prescribed dose of 7700 cGy (7700 rad).

The licensee stated that the administered dose of I-131 to the patient's thyroid is not expected to have major health effects.

Cause or Causes—The wrong dosage was administered to the patient because the written order for the I-131 procedure was misread by the administering technologist.

Actions Taken To Prevent Recurrence

Licensee—The licensee will have the written order on hand before ordering radiopharmaceuticals from the pharmacy and will have a second person verify the dosage before administration to the patient.

State Agency—The State Agency accepted the licensee's report and corrective action as appropriate. No further action was requested.

This event is closed for the purpose of this report.

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Dated at Rockville, Maryland this 5th day of May, 1998.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Secretary of the Commission.

[FR Doc. 98-12390 Filed 5-8-98; 8:45 am]

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NUCLEAR REGULATORY COMMISSION

[Docket Nos. 50-387 and 50-388]

Pennsylvania Power and Light Company; Notice of Issuance of Amendment to Facility Operating License

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. 176 to Facility Operating License No. NPF-14 and Amendment No. 149 to Facility Operating License No. NPF-22 issued to Pennsylvania Power and Light Company (PP&L, the licensee), which revised the Technical Specifications (TSs) for operation of the Susquehanna Steam Electric Station, Units 1 and 2, located in Luzerne County, Pennsylvania. The amendment is effective as of the date of issuance.

The amendment modified the TSs by changing the Rod Block Monitor (RBM) flow biased trip setpoints and also the RBM channel calibration frequency and allowed outage times.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

Notice of Consideration of Issuance of Amendment to Facility Operating License and Opportunity for a Hearing in connection with this action was published in the **Federal Register** on April 11, 1997 (62 FR 17885). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of the amendment will not have a significant effect on the quality

of the human environment (63 FR 24197).

For further details with respect to the action see (1) the application for amendment dated November 27, 1996, and supplemented by letter dated February 12, 1997, (2) Amendment No. 176 to License No. NPF-14, (3) Amendment No. 149 to License No. NPF-22, (4) the Commission's related Safety Evaluation, and (5) the Commission's Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street NW., Washington, DC, and at the local public document room located at the Osterhout Free Library, Reference Department, 71 South Franklin Street, Wilkes Barre, PA 18701.

Dated at Rockville, Maryland, this 4th day of May 1998.

For the Nuclear Regulatory Commission

Victor Nerses,

Senior Project Manager, Project Directorate I-2, Division of Reactor Projects—I/II, Office of Nuclear Reactor Regulation.

[FR Doc. 98-12391 Filed 5-8-98; 8:45 am]

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NUCLEAR REGULATORY COMMISSION

Southern Nuclear Operating Company, Inc., et al.; Notice of Consideration of Issuance of Amendments to Facility Operating Licenses, Proposed No Significant Hazards Consideration Determination, and Opportunity for a Hearing

[Docket Nos. 50-424 and 50-425]

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendments to Facility Operating License Nos. NPF-68 and NPF-81, issued to Southern Nuclear Operating Company, Inc., et al. (the licensee), for operation of the Vogtle Electric Generating Plant (VEGP), Units 1 and 2, located in Burke County, Georgia.

The proposed amendments would revise the VEGP Technical Specifications to authorize the licensee to increase the storage capacity of the VEGP Unit 1 spent fuel pool from the present capacity of 288 fuel assemblies to 1476 fuel assemblies. The change would be accomplished by the installation of high density fuel rack modules. The racks would utilize a neutron absorbing material between cells to assure a subcritical configuration.

The Commission had previously issued a Notice of Consideration of