UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SECRETARY

March 29, 2005

COMMISSION VOTING RECORD

DECISION ITEM: SECY-05-0035

TITLE: REPORT TO CONGRESS ON ABNORMAL OCCURRENCES: FISCAL YEAR 2004

The Commission (with all Commissioners agreeing) approved the subject paper as recorded in the Staff Requirements Memorandum (SRM) of March 29, 2005.

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Commission.

Andrew L. Bates
Acting Secretary of the Commission

Attachments:
1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield
Commissioner Jaczko
Commissioner Lyons
OGC
EDO
PDR

SECY NOTE: THIS VOTING RECORD WILL BE RELEASED TO THE PUBLIC 5 WORKING DAYS AFTER THE REPORT IS DISPATCHED.

VOTING SUMMARY - SECY-05-0035

RECORDED VOTES

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIP	COMMENTS	DATE
CHRM. DIAZ	X				X	3/11/05
COMR. McGAFFIGAN	X				X	3/4/05
COMR. MERRIFIELD	X				X	3/7/05
COMR. JACZKO	X				X	3/11/05
COMR. LYONS	X				X	2/23/05

COMMENT RESOLUTION

In their vote sheets, all Commissioners approved the staff's recommendation and provided some additional comments. Subsequently, the comments of the Commission were incorporated into the guidance to staff as reflected in the SRM issued on March 29, 2005.

SECY NOTE: THIS VOTING RECORD WILL BE RELEASED TO THE PUBLIC 5 WORKING DAYS AFTER THE REPORT IS DISPATCHED.

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: CHAIRMAN DIAZ

SUBJECT: **SECY-05-0035 - REPORT TO CONGRESS ON ABNORMAL OCCURRENCES: FISCAL YEAR 2004**

Approved XX Disapproved _____ Abstain _____

Not Participating _____

COMMENTS:

I approve the Fiscal Year 2004 report to Congress on Abnormal Occurrences, subject to the attached edits. Additionally, the staff should work with the Agreement States to improve the consistency and clarity of the AO event descriptions for future editions of this report.

SIGNATURE

3/11/2005
DATE

Entered on "STARS" Yes ✓ No ___

ABNORMAL OCCURRENCES
IN FISCAL YEAR 2004

NUCLEAR POWER PLANTS

During this period, no events occurred at U.S. nuclear power plants that were significant enough to be reported as AOs.

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FUEL CYCLE FACILITIES
(Other Than Nuclear Power Plants)

This section discusses the events that occurred at NRC-licensed or regulated facilities during this reporting period, which were significant enough to be reported as AOs based on the criteria in Appendix A to this report.

04-01 Uranium Hexafluoride Release at Honeywell Speciality Chemicals, Inc. in Metropolis, Illinois

Criterion III.A.,"For Fuel Facilities," of Appendix A to this report states that a shutdown of the plant or portion of the plant resulting from a significant event and/or violation of a law, regulation, or a license/certificate condition will be considered for reporting as an AO.

Date and Place — December 22, 2003; Honeywell International, Inc., Honeywell Specialty Chemicals, Metropolis, Illinois.

Nature and Probable Consequences — On December 22, 2003, a uranium hexafluoride (UF_6) release occurred from one of the plant's chemical process lines. The release lasted approximately 40 minutes. The licensee observed a visible cloud crossing the site boundary and declared a site area emergency, which was terminated approximately 4 hours later. Approximately 25 members of the public were temporarily evacuated from their homes, and approximately 75 persons remained sheltered in their homes for a time. Four members of the public went to the hospital. Three of the four were examined and released, while the fourth was held for observation and released the next day. One member of the public showed skin reddening on portions of his face and part of one arm, which indicated a hydrogen fluoride (HF) acid burn. Honeywell's initial estimate of a release of 7 pounds of UF_6 was later refined to be approximately 70 pounds. Based on air samples and environmental measurements by the State and a Honeywell contractor, and urinalyses for workers and members of the public, the NRC concluded that the release was below the agency's limits and had minimal impact on worker or public health and safety. Honeywell shut the plant down and agreed to discuss corrective actions with the NRC before restarting operations to determine whether the NRC had any objection to restarting specific operations.

Clarify if the "one member" is in addition to, or a subset of, the "four members"

Cause(s) — An NRC Augmented Inspection Team (AIT) and Honeywell's Root Cause Investigation Team identified similar root and contributing causes. The Honeywell Root Cause Investigation Team provided its findings to the NRC in a meeting on February 11, 2004.

This discussion should include a brief description of the proximate cause of the UF-6 release.

plant operations, chemical safety, emergency preparedness, maintenance and surveillance, management organization and controls, and operator training. The June inspection did not identify any violations, but the August inspection identified two Severity Level IV violations. Those cited violations concerned the conduct of operations that were not adequately described in written operating procedures and an inadequate evaluation of the radiological conditions associated with storage of bed material and filter fines.

On September 30, 2004, the NRC held a public meeting with Honeywell to discuss the company's progress in implementing long-term corrective actions that will ensure sustained performance improvements. Honeywell's long-term efforts were primarily directed at procedures and training, plant material conditions, and emergency preparedness. The NRC also described the additional inspections completed since the restart of licensed operations at the site and the agency's plan to continue increased oversight.

The NRC performed an additional inspection in December 2004, and identified a violation that involved the failure of the licensee's operations personnel to properly perform pre-fill inspections of UF_6 cylinders. This failure resulted in Honeywell's shipment of 14 cylinders with prohibited Hunt valves attached. Based upon the results of this inspection, together with those of the previous inspections, the NRC has determined that the heightened oversight of licensed activities performed at the Honeywell facilities will continue.

This event is open for the purpose of this report.

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04-02 Incinerator Event at Westinghouse Columbia Fuel Fabrication Facility in Columbia, South Carolina

Criteria III.A., "For Fuel Cycle Facilities," of Appendix A to this report states that a shutdown of the plant or portion of the plant resulting from a significant event and/or violation of a law, regulation, or a license/certificate condition will be considered for reporting as an AO.

Date and Place — Discovered on March 5, 2004; Westinghouse Columbia Fuel Fabrication Facility; Columbia, South Carolina.

Nature and Probable Consequences — The licensee uses a standard industrial incinerator to reduce uranium-contaminated process waste volume and facilitate uranium recovery from the waste. During a technical review of a proposed procedure change, the licensee determined that its incinerator off-gas system was being operated outside the approved safety basis. Samples of ash deposited at various locations in the incinerator exceeded the assumed uranium concentration for incinerator ash. The licensee immediately stopped incinerator operations and performed a complete incinerator clean-out. The licensee determined that approximately 271 kilograms of ash at a maximum uranium concentration of approximately 30 wt% had accumulated in the incinerator's secondary combustion chamber. The licensee had performed a criticality analysis that concluded no ash would accumulate in the secondary combustion chamber, and the maximum uranium concentration of ash in the incinerator system could not exceed 21.6 wt%. No criticality safety controls were in place

to prevent the accumulation of fly-ash containing excessive uranium concentrations.

Cause(s) — The licensee's criticality safety staff failed to recognize that fly-ash could accumulate in the incinerator's secondary combustion chamber, and ash uranium concentrations could exceed 21.6 wt%. Contributing factors were the failure to control incinerator operations that allowed the increased uranium concentration in the fly-ash, and failure to recognize excessive material accumulation or uranium concentration increases.

Actions Taken to Prevent Recurrence

Licensee — The licensee immediately stopped incinerator operations and initiated a project to prevent future material accumulations. The licensee also initiated a program to upgrade criticality safety at the plant, including assigning additional staff to the nuclear criticality safety program, improving ownership of criticality safety by production and engineering staff, improving management and ownership of change, performing a comprehensive review of existing criticality safety analyses, using the integrated safety analysis process to prioritize changes to administrative criticality safety controls, and implementing a comprehensive program throughout the plant to ensure procedure compliance.

NRC — On May 13, 2004, the NRC issued Inspection Report 70-1151/2004-001, which described the event. On July 19, 2004, the NRC issued an Information Notice to fuel cycle licensees concerning the use of less-than-optimal bounding assumptions in criticality safety analyses at fuel cycle facilities. On July 28, 2004, the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty in the amount of $24,000 to the licensee for failure to establish and maintain double-contingency protection in the incinerator and failure of management controls to detect the accumulation of a critical mass of fissile material in an unsafe geometry vessel. Although the normal civil penalty assessment process would have fully mitigated the civil penalty, the NRC exercised enforcement discretion in accordance with Section VII.A.1 of the Enforcement Policy and proposed a base civil penalty to reflect the safety significance of the issue, which resulted in a substantial increase in the likelihood of a nuclear criticality event. On October 21, 2004, the NRC conducted a management meeting with the licensee to discuss the incinerator event and its proposed corrective actions. The NRC will follow the corrective actions through the agency's inspection and oversight programs.

This event is closed for the purpose of this report.

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Cause(s) — This event occurred as a result of human error and failure to follow established procedures. An initial crimp failure on the vial may also have contributed to the spill.

Actions Taken to Prevent Recurrence

Licensee —The licensee retrained all staff in spill procedures, emphasizing proper notification of supervisors. Additionally, at the prompting of the licensee, the vial supplier reevaluated the process of ensuring that each crimp is acceptable for shipment, although the supplier believed it was more likely an isolated incident.

State Agency — The State agency conducted inspections and cited the licensee for violations of regulations for controlling radiation.

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AS 04-06 Gamma Stereotactic Radiosurgery (Gamma Knife) Medical Event at Radiosurgical Center of Memphis in Memphis, Tennessee

Criterion IV, "For Medical Licensees," of Appendix A to this report states, in part, that a medical event results in a dose that is (1) equal to or greater than 1 Gy (100 rads) to a major portion of the bone marrow, to the lens of the eye, or the gonads, or (2) equal to or greater than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an AO.

Verify if 2003 is the correct year.

Date and Place — January 24, 2003; Radiosurgical Center of Memphis; Memphis, Tennessee.

Nature and Probable Consequences — The licensee reported that a patient received 27 Gy (2,700 rads) to a brain metastasis instead of the intended 18 Gy (1,800 rads) during gamma knife treatment. The physicist did not determine that an error had occurred until the treatment was complete. The RSO determined that one of the four brain metastases received greater than the prescribed dose. The other three brain metastases received the prescribed dose. The tumor that received the incorrect dose was at the periphery of the brain next to the skull in a non-critical area so that much of the extra dose was delivered to the space between the brain and the skull. The cause of the incident was that a 14-millimeter (mm) (.55-inch) collimator helmet was used instead of the prescribed 8-mm (.31 inch) collimator helmet. The personnel setting up the treatment neglected to change the helmet. The referring physician was notified of the event.

Cause(s) — The cause was human error, in that the event resulted from use of the wrong collimator helmet.

Actions Taken to Prevent Recurrence

Licensee — The licensee established a new procedure to require the physician, physicist, and nurse to sign off on the treatment time, helmet size, and position before each shot. Also, new labels identifying the size of the helmet were attached to each of the four helmets. These labels can be seen by personnel via the TV monitor located at the control panel

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER MCGAFFIGAN

SUBJECT: **SECY-05-0035 - REPORT TO CONGRESS ON ABNORMAL OCCURRENCES: FISCAL YEAR 2004**

Approved X w/comment&edits Disapproved _____ Abstain _____

Not Participating _____

COMMENTS:

See attached comments, and edits.

SIGNATURE

March 4, 2005

DATE

Entered on "STARS" Yes X No ___

Commissioner McGaffigan's Comments on SECY-05-0035

I approve the contents of the proposed Abnormal Occurrences report for FY 2004 subject to several minor edits (attached). I also approve the edits of Commissioner Lyons.

Even though I am approving the report I was struck by the very obvious differences in the amount and type of information contained in the Agreement State event descriptions. Some of the descriptions submitted by Agreement States for inclusion in this report were much shorter and did not contain the same level of detail as other Agreement State reports. When looking at the report as a whole, and comparing all the event descriptions, a reader could be left with questions about certain events or left with a poor impression of the States that provided the shorter less detailed descriptions. Since this report is prepared for and is sent to Congress, I believe the Agreement States may want to consider providing more uniform, detailed descriptions for inclusion in the report. This may be a an issue that can be considered by the Organization of Agreement States.

ABNORMAL OCCURRENCES
IN FISCAL YEAR 2004

NUCLEAR POWER PLANTS

During this period, no events occurred at U.S. nuclear power plants that were significant enough to be reported as AOs.

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FUEL CYCLE FACILITIES
(Other Than Nuclear Power Plants)

This section discusses the events that occurred at NRC-licensed or regulated facilities during this reporting period, which were significant enough to be reported as AOs based on the criteria in Appendix A to this report.

04-01 Uranium Hexafluoride Release at Honeywell Speciality Chemicals, Inc. in Metropolis, Illinois

Criterion III.A.,"For Fuel Facilities," of Appendix A to this report states that a shutdown of the plant or portion of the plant resulting from a significant event and/or violation of a law, regulation, or a license/certificate condition will be considered for reporting as an AO.

Date and Place — December 22, 2003; Honeywell International, Inc., Honeywell Specialty Chemicals, Metropolis, Illinois.

Nature and Probable Consequences — On December 22, 2003, a uranium hexafluoride (UF_6) release occurred from one of the plant's chemical process lines. The release lasted approximately 40 minutes. The licensee observed a visible cloud crossing the site boundary and declared a site area emergency, which was terminated approximately 4 hours later. Approximately 25 members of the public were temporarily evacuated from their homes, and approximately 75 persons remained sheltered in their homes for a time. Four members of the public went to the hospital. Three of the four were examined and released, while the fourth was held for observation and released the next day. One member of the public showed skin reddening on portions of his face and part of one arm, which indicated a hydrogen fluoride (HF) acid burn. Honeywell's initial estimate of a release of 7 pounds of UF_6 was later refined to be approximately 70 pounds. ~~Based on air samples and environmental measurements by the State and a Honeywell contractor, and urinalyses for workers and members of the public, the NRC concluded that the release was below the agency's limits and had minimal impact on worker or public health and safety.~~ Honeywell shut the plant down and agreed to discuss corrective actions with the NRC before restarting operations to determine whether the NRC had any objection to restarting specific operations.

Delete

Cause(s) — An NRC Augmented Inspection Team (AIT) and Honeywell's Root Cause Investigation Team identified similar root and contributing causes. The Honeywell Root Cause Investigation Team provided its findings to the NRC in a meeting on February 11, 2004.

Key causes were as follows:

- The licensee failed to have a written procedure for an infrequent evolution and, thus, relied on the operator's memory to perform the required actions.
- The licensee's corrective action program had not adequately corrected a previously identified lack of procedures for certain activities, the licensee had not adequately aligned staff to the need for procedures for activities.
- The licensee did not have an alarm to warn operators that the system was becoming pressurized. The licensee did not have procedures or measures to respond to abnormal conditions during operations. The licensee did not have procedures or processes for documenting when equipment was not in proper working order.

In addition, the AIT and Honeywell Root Cause Investigation Team identified problems in implementing the emergency plan once the licensee identified the release, including problems in communication with State and local authorities.

Actions Taken to Prevent Recurrence

Licensee — In addition to the Root Cause Investigation Team, Honeywell chartered a Plant Engineering Team, a "Triangle of Prevention" Team, and a Corporate "Deep Dive" Team to review the facility and operations. These teams reviewed certain UF_6 safety and environmental improvements, management processes, change management, mechanical integrity, and the emergency plan. As a result of these reviews, Honeywell developed a list of corrective and improvement actions to be completed before restarting operations. On March 4, 2004, Honeywell submitted a list of the actions to be taken for each phase of the restart. Honeywell has also worked with State and local authorities to improve emergency response, and the company conducted an emergency drill with local agencies on March 11, 2004. That drill identified items that needed to be improved, including use of the dedicated phone for communicating with off site authorities. Honeywell plans to improve this communication method. In addition, Honeywell is in the process of implementing other corrective and improvement actions.

NRC — The NRC developed a Restart Readiness Oversight Plan to review Honeywell's actions, including safety and emergency preparedness improvements. The NRC has reviewed actions the licensee planned to prevent recurrence. In addition, the NRC observed an emergency drill of the revised Emergency Plan and procedures.

The NRC held two public meetings in Metropolis, Illinois (on March 18 and April 21, 2004) during the restart phase to inform the public of the licensee's plans and progress and to describe the NRC's oversight activities and results. In addition, the NRC completed inspections of the licensee's corrective actions before the restart of licensed operations. On May 10, 2004, the NRC issued a Notice of Violation for two significant violations identified during the AIT inspection. Specifically, those violations involved (1) reconfiguration of the fluorination system without detailed instructions (which allowed a UF_6 leak to occur), and (2) failure to maintain and execute various response measures in the emergency response plan.

The NRC performed followup inspections specifically focused on Honeywell's implementation of its corrective actions on June 10 and August 13, 2004. The areas inspected included

plant operations, chemical safety, emergency preparedness, maintenance and surveillance, management organization and controls, and operator training. The June inspection did not identify any violations, but the August inspection identified two Severity Level IV violations. Those cited violations concerned the conduct of operations that were not adequately described in written operating procedures and an inadequate evaluation of the radiological conditions associated with storage of bed material and filter fines.

On September 30, 2004, the NRC held a public meeting with Honeywell to discuss the company's progress in implementing long-term corrective actions that will ensure sustained performance improvements. Honeywell's long-term efforts were primarily directed at procedures and training, plant material conditions, and emergency preparedness. The NRC also described the additional inspections completed since the restart of licensed operations at the site and the agency's plan to continue increased oversight.

The NRC performed an additional inspection in December 2004, and identified a violation that involved the failure of the licensee's operations personnel to properly perform pre-fill inspections of UF_6 cylinders. This failure resulted in Honeywell's shipment of 14 cylinders with prohibited Hunt valves attached. Based upon the results of this inspection, together with those of the previous inspections, the NRC has determined that the heightened oversight of licensed activities performed at the Honeywell facilities will continue.

This event is open for the purpose of this report.

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04-02 Incinerator Event at Westinghouse Columbia Fuel Fabrication Facility in Columbia, South Carolina

Criteria III.A., "For Fuel Cycle Facilities," of Appendix A to this report states that a shutdown of the plant or portion of the plant resulting from a significant event and/or violation of a law, regulation, or a license/certificate condition will be considered for reporting as an AO.

Date and Place — Discovered on March 5, 2004; Westinghouse Columbia Fuel Fabrication Facility; Columbia, South Carolina.

Nature and Probable Consequences — The licensee uses a standard industrial incinerator to reduce uranium-contaminated process waste volume and facilitate uranium recovery from the waste. During a technical review of a proposed procedure change, the licensee determined that its incinerator off-gas system was being operated outside the approved safety basis. Samples of ash deposited at various locations in the incinerator exceeded the assumed uranium concentration for incinerator ash. The licensee immediately stopped incinerator operations and performed a complete incinerator clean-out. The licensee determined that approximately 271 kilograms of ash at a maximum uranium concentration of approximately 30 wt% had accumulated in the incinerator's secondary combustion chamber. The licensee had performed a criticality analysis that concluded no ash would accumulate in the secondary combustion chamber, and the maximum uranium concentration of ash in the incinerator system could not exceed 21.6 wt%. No criticality safety controls were in place

to prevent the accumulation of fly-ash containing excessive uranium concentrations.

Cause(s) — The licensees' criticality safety staff failed to recognize that fly-ash could accumulate in the incinerator's secondary combustion chamber, and ash uranium concentrations could exceed 21.6 wt%. Contributing factors were the failure to control incinerator operations that allowed the increased uranium concentration in the fly-ash, and failure to recognize excessive material accumulation or uranium concentration increases.

Actions Taken to Prevent Recurrence

Licensee — The licensee immediately stopped incinerator operations and initiated a project to prevent future material accumulations. The licensee also initiated a program to upgrade criticality safety at the plant, including assigning additional staff to the nuclear criticality safety program, improving ownership of criticality safety by production and engineering staff, improving management and ownership of change, performing a comprehensive review of existing criticality safety analyses, using the integrated safety analysis process to prioritize changes to administrative criticality safety controls, and implementing a comprehensive program throughout the plant to ensure procedure compliance.

NRC — On May 13, 2004, the NRC issued Inspection Report 70-1151/2004-001, which described the event. On July 19, 2004, the NRC issued an Information Notice to fuel cycle licensees concerning the use of less-than-optimal bounding assumptions in criticality safety analyses at fuel cycle facilities. On July 28, 2004, the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty in the amount of $24,000 to the licensee for failure to establish and maintain double-contingency protection in the incinerator and failure of management controls to detect the accumulation of a critical mass of fissile material in an unsafe geometry vessel. Although the normal civil penalty assessment process would have fully mitigated the civil penalty, the NRC exercised enforcement discretion in accordance with Section VII.A.1 of the Enforcement Policy and proposed a base civil penalty to reflect the safety significance of the issue, which resulted in a substantial increase in the likelihood of a nuclear criticality event. On October 21, 2004, the NRC conducted a management meeting with the licensee to discuss the incinerator event and its proposed corrective actions. The NRC will follow the corrective actions through the agency's inspection and oversight programs.

This event is closed for the purpose of this report.

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AS 04-09 Intravascular Brachytherapy Medical Event at Ireland Cancer Center in Middleburg Heights, Ohio.

Criterion IV, "For Medical Licensees," of Appendix A to this report states, in part, that a medical event that results in a dose that is (1) equal to or greater than 1 Gy (100 rads) to a major portion of the bone marrow, to the lens of the eye, or to the gonads or (2) equal to or greater than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an AO.

Date and Place — December 22, 2003; Ireland Cancer Center; Middleburg Heights, Ohio.

Nature and Probable Consequences — The licensee reported that a patient received a radiation dose to an unintended site 3 cm proximal to the prescribed treatment site during an intravascular brachytherapy (IVB) treatment procedure. The dose delivered to the unintended site was approximately 18.40 Gy (1,840 rads). The event involved an IVB device that used a 3.5-mm catheter and a source train that contained Sr-90 with an activity of 2.0 GBq (53.8 mCi). The source train traveled to a location approximately 3 cm proximal to the intended treatment site. It was determined that there was a kink in the delivery catheter, which kept the source train from traveling to the correct site. The kink was not substantial enough to affect the flow of sterile water used to send and retrieve the source train. The kink was discovered the following day during medical physics quality checks. The attending physician was notified of the event.

Cause(s) — The cause of the event was determined to be a kink in the delivery catheter, which kept the source train from traveling to the correct site.

Actions Taken to Prevent Recurrence

Licensee — Corrective actions incorporated by the licensee included additional cine films taken during procedures to verify the placement of the catheter. When there is any doubt of the placement of the catheter, the treatment will be aborted. The treatment team will then evaluate whether to attempt treatment with a different catheter.

State Agency — The Ohio Department of Health conducted an investigation, reviewed the licensee's corrective actions, and found them adequate to prevent recurrence.

This event is considered closed for the purpose of this report.

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AS 04-10 Intravascular Brachytherapy Medical Event at Swedish Medical Center in Seattle, Washington

Criterion IV, "For Medical Licensees," of Appendix A to this report states, in part, that a medical event that results in a dose that is (1) equal to or greater than 1 Gy (100 rads) to a major portion of the bone marrow, to the lens of the eye, or to the gonads or (2) equal to or greater

than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an AO.

Date and Place — November 18, 2003; Swedish Medical Center; Seattle, Washington.

Nature and Probable Consequences — A patient undergoing an IVB treatment for coronary restenosis received 13.78 Gy (1,378 rads) to an unintended site (healthy tissue). The licensee reported that the source train was partially inserted into a small artery, and the routing did not follow a direct path. When the difficulty occurred, the source train had been partially inserted 65 mm proximal to the intended site. The source train contained a total activity of 2.91 GBq (78.56 mCi). A 143-second exposure time elapsed before the cardiologist withdrew the source train, even though the licensee's procedure requires sources to be immediately withdrawn once a problem occurs. The delay occurred as the cardiologist first worked to fully insert the source train and then discussed correcting the problem with the oncologist. The catheter was examined, and there were no kinks or bends. It was determined that there were no failures of the IVB device. It was suspected that the pressure from the artery and the tortuous route to the site caused a contraction of a portion of the catheter and resulted in the seeds becoming stuck at a particular location. The cardiologist was suspended from licensed activities until the details of the event were fully understood. The patient and the patient's referring physician were notified of the event.

Cause or Causes — It is suspected that the pressure from the small artery and the tortuous route to the site caused a contraction of a portion of the source train and resulted in the seeds becoming stuck at a particular location.

Actions Taken to Prevent Recurrence

Licensee — Corrective actions included reemphasizing the importance of adhering to established procedures and protocols before administering radiopharmaceuticals, and ensuring that all staff completed refresher training.

State Agency — The State reviewed and approved the corrective actions taken by the licensee and will follow-up at the next inspection.

This event is closed for the purpose of this report.

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AS 04-11 Diagnostic Medical Event at Swedish Medical Center in Seattle, Washington

Criterion IV, "For Medical Licensees," of Appendix A to this report states, in part, that a medical event that results in a dose that is (1) equal to or greater than 1 Gy (100 rads) to a major portion of the bone marrow, to the lens of the eye, or to the gonads or (2) equal to or greater than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an AO.

Date and Place — September, 24, 2004; Swedish Medical Center; Seattle, Washington.

3. Missing Fuel Rod Segments at Humboldt Bay Power Plant in Eureka, California

This event did not meet the AO criteria because it did not involve a major reduction in the degree of protection of public health or safety. Nonetheless, this event is included in this report because it received significant public interest.

On July 16, 2004, Pacific Gas and Electric Company (the licensee), notified the NRC of a discrepancy between inventory records and the physical location of three spent fuel rod segments, each approximately 18 inches long, that were previously known to be at the Humboldt Bay Power Plant. The licensee submitted a 30-day followup report pursuant to 10 CFR 20.2201(b)(2)(ii) on August 16, 2004. The licensee searched for the segments in the most likely and accessible locations within the onsite spent fuel pool. After this search failed to locate the segments, the licensee made a 1-hour notification to the NRC on August 17, 2004, pursuant to 10 CFR 74.11(a), stating that the fuel rod segments were considered to be missing. The issue received a moderate level of public and media attention.

During the fall of 2003, the licensee began a detailed examination of the contents of its spent fuel pool in preparation for eventual removal of the fuel assemblies stored in the pool to an onsite dry cask storage facility. While in the process of performing a record review of the spent fuel pool inventory, the licensee identified a discrepancy on June 23, 2004, that called into question the location of three segments of a portion of a single spent fuel rod removed from an assembly (designated A-49) in 1968. Records from 1968 indicate that a single fuel rod from assembly A-49 was cut into three 18-inch segments that were placed in a small container with an intention to ship the segments to an offsite lab for analysis. The records further show that the offsite shipment never occurred, and the three 18-inch segments in their special storage container were placed somewhere in the spent fuel pool without a record of the specific location. The licensee has been unable to locate these three 18-inch rod segments in the spent fuel pool, and has not found any records documenting their shipment off site. The licensee notes that records of the shipment of assembly A-49 show it was sent to West Valley, New York, for reprocessing on August 6, 1969. The records for the assembly shipment did not mention that a rod had been removed from the assembly.

The licensee is continuing a search of the less accessible areas in the spent fuel pool where the three fuel rod segments may be located. In addition, the licensee is continuing its review of plant records and interviewing plant personnel who were on site during the period from 1968 through 1969. The licensee still contends that the most likely location for the missing spent fuel rod segments is in the spent fuel pool. The licensee has identified five other possible locations, including the low-level radioactive waste disposal sites at Richland, Washington, Beatty, Nevada, or Barnwell, South Carolina; the fuel reprocessing center at West Valley, New York; and the General Electric research facility at Vallecitos, California.

The potential for theft or diversion of the missing fuel segments has been considered, although the NRC has not formally evaluated this possibility. The information that the NRC has received from the licensee's investigation and the agency's own inspections does not indicate that the fuel segments were stolen or diverted. In addition, the physical security at the site and the extensive array of radiation detectors make it highly unlikely that the missing fuel rod segments could have been diverted or stolen without detection.

However, the NRC expects the licensee to address this unlikely possibility in a root-cause analysis and will evaluate the licensee's assessment in followup inspections.

The NRC conducted onsite inspections at Humboldt Bay on July 12–16, August 5–13, and September 13–17, 2004, to monitor the licensee's investigation and actions regarding the three missing 18-inch fuel rod segments. Then, on September 29, 2004, the NRC and the licensee held a management meeting in the area of Eureka, California, to provide a public forum for discussion of actions taken to date by the licensee and the NRC. The NRC also dispatched a special inspection team to Humboldt Bay on November 2, 2004, to review the results of the licensee's investigation, assess the root-cause evaluation, determine whether the licensee is in compliance with applicable regulations, and identify which findings may have generic implications. The special inspection will continue throughout the licensee's investigation, potentially lasting into the third quarter of FY 2005.

The NRC's actions for this event are ongoing, and this event remains open for the purpose of this report.

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Other NRC Licensees

4. Radiation Exposure of Individuals during a Stuck Source Rack Event

This event is not considered an AO because it did not result in a dose to an individual that met the AO reporting criteria. Nonetheless, this event is included in this report because it has received significant media coverage.

On April 21, 2004, two employees at Baxter Healthcare Corporation (Baxter) of Aibonito, Puerto Rico, were exposed to radiation when they entered the panoramic irradiator facility without knowing that a source rack, containing a large amount of cobalt-60 in sealed sources, was stuck in an unshielded position. One individual received 44 mSv (4.4 rem) deep dose equivalent, and the other individual received 28 mSv (2.8 rem) deep dose equivalent. Had the two individuals continued on their intended path, they would have received life-threatening doses of at least 4.5 Gy (450 rads).

The source rack became stuck during testing shortly before 1:00 p.m., when a maintenance ladder that was inadvertently left in the path of the source rack movement following repair work, prevented the source rack from returning to its safe storage location in the pool. The irradiator operator bypassed the interlocks, then entered the irradiator and walked through the partially shielded interim area with an assistant. They were preparing to enter the sterilization room when they identified elevated radiation levels by observing the needle movement on a portable survey meter. The two individuals immediately exited the irradiator following the same path.

When the employees entered the irradiator, the licensee did not realize that the source rack was stuck in the unshielded position, but believed that the fault alarms that activated the interlocks were still related to the ongoing problem with a source-up switch experienced many times earlier on that day. Repair of that switch required entry into the irradiator. Therefore, the licensee approved personnel to bypass safety interlocks in order to gain entry

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER MERRIFIELD

SUBJECT: **SECY-05-0035 - REPORT TO CONGRESS ON ABNORMAL OCCURRENCES: FISCAL YEAR 2004**

Approved ✓ Disapproved _____ Abstain _____

Not Participating _____

COMMENTS:

See attached comments.

SIGNATURE

3/7/05

DATE

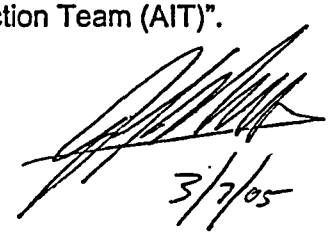
Entered on "STARS" Yes ✓ No ___

Comments from Commissioner Merrifield on SECY-05-0035:

I approve, as edited in the following paragraphs, the report to Congress on abnormal occurrences for fiscal year 2004 (SECY-05-0035).

I fully understand that the report contains input from both the staff and the Agreement States. However, the report itself is a NRC document to Congress and, as such, the NRC assumes ownership for the comments. In addition, the audience for this report is members of Congress and their staff. Therefore we need to write the report in such a manner where it is clearly understandable to a non-technical audience and places the events in proper perspective. Overall, the report is acceptably written, but the report should be revised to provide more consistency in the medical event sections. In particular, somewhere under the heading titled "Nature and Probable Consequences" for medical events, the report should provide two standard statements. The first statement should be that the patient and referring physician were informed of the circumstances as is required by our regulations. The second statement should be something about the consequences to the patient. Some of the medical event descriptions include both elements and are fine. Some do not discuss either element and others only discuss the fact that the referring physician was informed. All of the medical events should address both issues. The staff does not need to go into elaborate detail concerning the consequences to the patient. For example, a statement that the referring physician evaluated the dose received and determined it was acceptable is a satisfactory explanation. If we do not have a statement from the referring physician, or another physician, or in the Agreement State write-up, staff should use our medical consultants to provide a statement indicating what that exposure could mean to the patient and that normally the referring physician would follow up in investigating those possibilities. The purpose of this consequence statement is not to diagnose the patient or in any way affect their treatment. Rather the purpose of the consequence statement is to provide Congress a better understanding of the event because they will already believe the event is significant as it reached the level where the NRC reported it to Congress. Staff should also communicate to the Agreement States that such information should be included in future event reporting.

As minor editorial edits, the following should be corrected. In appendix C, item 2 (Loss of Offsite Power at Palo Verde), 4th paragraph, the acronym AIT should read "Augmented Inspection Team (AIT)". In appendix C, item 4 (Radiation Exposure of Individuals during a Stuck Source Rack Event), next to last paragraph, the acronym AIT should read "Augmented Inspection Team (AIT)".



NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER JACZKO

SUBJECT: **SECY-05-0035 - REPORT TO CONGRESS ON ABNORMAL OCCURRENCES: FISCAL YEAR 2004**

Approved X Disapproved _____ Abstain _____

Not Participating _____

COMMENTS:

Approved with attached Comments

SIGNATURE

3/16/05

DATE

Entered on "STARS" Yes ✓ No ___

Comments from Commissioner Jaczko's on SECY-05-0035

I approve the contents of the proposed Abnormal Occurrences report to Congress for fiscal year 2004. I also approve the edits of my fellow Commissioners.

I want to echo Commissioner Merrifield's comment regarding the "need to write the report in such a manner where it is clearly understandable to a non-technical audience." I encourage the staff to continue their work to make all the Nuclear Regulatory Commission's written products more understandable to Congress and other stakeholders.

3/16/05

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER LYONS

SUBJECT: **SECY-05-0035 - REPORT TO CONGRESS ON ABNORMAL OCCURRENCES: FISCAL YEAR 2004**

Approved X Disapproved _____ Abstain _____

Not Participating _____

COMMENTS: with edits

Peter Lyons
SIGNATURE

2/23/05
DATE

Entered on "STARS" Yes X No ___

plant operations, chemical safety, emergency preparedness, maintenance and surveillance, management organization and controls, and operator training. The June inspection did not identify any violations, but the August inspection identified two Severity Level IV violations. Those cited violations concerned the conduct of operations that were not adequately described in written operating procedures and an inadequate evaluation of the radiological conditions associated with storage of bed material and filter fines.

On September 30, 2004, the NRC held a public meeting with Honeywell to discuss the company's progress in implementing long-term corrective actions that will ensure sustained performance improvements. Honeywell's long-term efforts were primarily directed at procedures and training, plant material conditions, and emergency preparedness. The NRC also described the additional inspections completed since the restart of licensed operations at the site and the agency's plan to continue increased oversight.

The NRC performed an additional inspection in December 2004, and identified a violation that involved the failure of the licensee's operations personnel to properly perform pre-fill inspections of UF_6 cylinders. This failure resulted in Honeywell's shipment of 14 cylinders with prohibited Hund valves attached. Based upon the results of this inspection, together with those of the previous inspections, the NRC has determined that the heightened oversight of licensed activities performed at the Honeywell facilities will continue.

This event is open for the purpose of this report.

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04-02 Incinerator Event at Westinghouse Columbia Fuel Fabrication Facility in Columbia, South Carolina

Criteria III.A., "For Fuel Cycle Facilities," of Appendix A to this report states that a shutdown of the plant or portion of the plant resulting from a significant event and/or violation of a law, regulation, or a license/certificate condition will be considered for reporting as an AO.

Date and Place — Discovered on March 5, 2004; Westinghouse Columbia Fuel Fabrication Facility; Columbia, South Carolina.

Nature and Probable Consequences — The licensee uses a standard industrial incinerator to reduce uranium-contaminated process waste volume and facilitate uranium recovery from the waste. During a technical review of a proposed procedure change, the licensee determined that its incinerator off-gas system was being operated outside the approved safety basis. Samples of ash deposited at various locations in the incinerator exceeded the assumed uranium concentration for incinerator ash. The licensee immediately stopped incinerator operations and performed a complete incinerator clean-out. The licensee determined that approximately 271 kilograms of ash at a maximum uranium concentration of approximately 30 wt% had accumulated in the incinerator's secondary combustion chamber. The licensee had performed a criticality analysis that concluded no ash would accumulate in the secondary combustion chamber, and the maximum uranium concentration of ash in the incinerator system could not exceed 21.6 wt%. No criticality safety controls were in place

than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an AO.

Date and Place — November 18, 2003; Swedish Medical Center; Seattle, Washington.

Nature and Probable Consequences — A patient undergoing an IVB treatment for coronary restenosis received 13.78 Gy (1,378 rads) to an unintended site (healthy tissue). The licensee reported that the source train was partially inserted into a small artery, and the routing did not follow a direct path. When the difficulty occurred, the source train had been partially inserted 65 mm proximal to the intended site. The source train contained a total activity of 2.91 GBq (78.56 mCi). A 143-second exposure time elapsed before the cardiologist withdrew the source train, even though the licensee's procedure requires sources to be immediately withdrawn once a problem occurs. The delay occurred as the cardiologist first worked to fully insert the source train and then discussed correcting the problem with the oncologist. The catheter was examined, and there were no kinks or bends. It was determined that there were no failures of the IVB device. It was suspected that the pressure from the artery and the tortuous route to the site caused a contraction of a portion of the catheter and resulted in the seeds becoming stuck at a particular location. The cardiologist was suspended from licensed activities until the details of the event were fully understood. The patient and the patient's referring physician were notified of the event.

Cause or Causes — It is suspected that the pressure from the small artery and the tortuous route to the site caused a contraction of a portion of the source train and resulted in the seeds becoming stuck at a particular location.

Actions Taken to Prevent Recurrence

Licensee — Corrective actions included reemphasizing the importance of adhering to established procedures and protocols before administering radiopharmaceuticals, and ensuring that all staff completed refresher training.

State Agency — The State reviewed and approved the corrective actions taken by the licensee and will follow-up at the next inspection.

This event is closed for the purpose of this report.

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AS 04-11 Diagnostic Medical Event at Swedish Medical Center in Seattle, Washington

Criterion IV, "For Medical Licensees," of Appendix A to this report states, in part, that a medical event that results in a dose that is (1) equal to or greater than 1 Gy (100 rads) to a major portion of the bone marrow, to the lens of the eye, or to the gonads or (2) equal to or greater than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an AO.

Date and Place — September, 24, 2004; Swedish Medical Center; Seattle, Washington.