



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

April 5, 2007

SECRETARY

COMMISSION VOTING RECORD

DECISION ITEM: SECY-07-0037

TITLE: REPORT TO CONGRESS ON ABNORMAL
OCCURRENCES: FISCAL YEAR 2006

The Commission (with all Commissioners agreeing) approved the subject paper as recorded in the Staff Requirements Memorandum (SRM) of April 5, 2007.

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

A handwritten signature in black ink, appearing to read "A. L. Bates", written over a horizontal line.

Andrew L. Bates
Acting Secretary of the Commission

Attachments:

1. Voting Summary
2. Commissioner Vote Sheets

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

SECY NOTE: TO BE MADE PUBLICLY AVAILABLE 5 WORKING DAYS AFTER
DISPATCH OF THE LETTER TO CONGRESS

VOTING SUMMARY - SECY-07-0037

RECORDED VOTES

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIP	COMMENTS	DATE
CHRM. KLEIN	X				X	3/12/07
COMR. McGAFFIGAN	X				X	3/5/07
COMR. MERRIFIELD	X				X	3/9/07
COMR. JACZKO	X				X	3/6/07
COMR. LYONS	X				X	2/28/07

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 April 5, 2007.

NOTATION VOTE

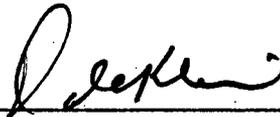
RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: CHAIRMAN KLEIN
SUBJECT: SECY-07-0037 - REPORT TO CONGRESS ON
ABNORMAL OCCURRENCES: FISCAL YEAR 2006

Approved X Disapproved _____ Abstain _____

Not Participating _____

COMMENTS: Below _____ Attached X None _____



SIGNATURE

3/12/07

DATE

Entered on "STARS" Yes ✓ No _____

Chairman Klein's Comments on SECY-07-0037

I approve the Abnormal Occurrence report and letters to Congress, with the comments and edits provided below.

The staff has prepared a report that is well written, provides an appropriate description of each abnormal occurrence, and adequately address the nature and probable consequence(s) of the event, likely cause(s), and actions to prevent recurrence. It is clear that the staff has made an effort to follow the events to closure, and to coordinate with the Agreement States to ensure complete information is included for their events.

The tritium ground-water contamination events resulting from undetected leakage at power reactors are appropriately included as "other events of interest" based on the significant Congressional, public, and media interest, and NRC's establishment of a Lessons Learned Task Force. However, I agree with Commissioner McGaffigan's concern that we need to ensure that the event description(s) appropriately communicate the minimal health and safety risk and potential consequences posed by these events.

Although certain information on the facility involved in the spill of high-enriched uranium is currently available through public sources, I do not agree with Commissioner Jaczko that an exception to the established procedures that would withhold information on this facility is warranted for this report.

In the last paragraph of the letters to Congress, and on page iii of the report, 6th paragraph, revise the first and last sentences as follows: "...radioactive material, and other discrete sources of naturally occurring radioactive material.", and "...the NRC and Agreement States will also monitor events involving these materials that may meet the revised AO criteria."

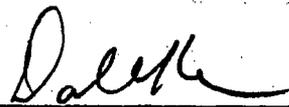
Page 3 of report, correct the cited Criterion for event 06-03 as follows: "Criterion I.A.42."

Page 6 of report, correct the Criterion description for event AS 06-03 as follows: "...and represents a prescribed dose or dosage that is at least 50 percent greater than that prescribed..."

Page 6 of report, correct the Cause(s) description for event AS 06-03 as follows: "This medical event was caused by human error."

Page 7 of report, correct the 2nd sentence of Nature and Probable Consequences for event AS 06-04 as follows: "The patient was prescribed 108 Gy (10,800 rad) to the base of the prostate gland with 84 I-125 seeds; but it was delivered..."

Page 7 of report, correct the Criterion description for event AS 06-05 as follows: "...and represents a dose or dosage that is at least 50 percent greater than that prescribed..."


Dale E. Klein 3/12/07
Date Date

NOTATION VOTE

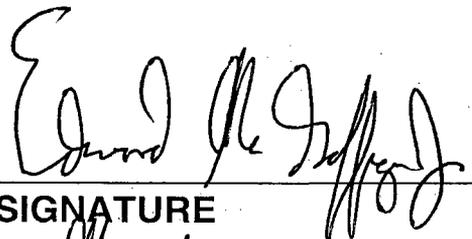
RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: COMMISSIONER MCGAFFIGAN
SUBJECT: SECY-07-0037 - REPORT TO CONGRESS ON
ABNORMAL OCCURRENCES: FISCAL YEAR 2006

Approved Disapproved _____ Abstain _____

Not Participating _____

COMMENTS: Below _____ Attached None _____



SIGNATURE

DATE

March 9, 2007

Entered on "STARS" Yes No _____

PREFACE

INTRODUCTION

Section 208 of the Energy Reorganization Act of 1974 (Public Law 93-438) defines an "abnormal occurrence" (AO) as an unscheduled incident or event that the U.S. 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 (Public Law 104-66) requires that the NRC must report AOs to Congress annually. This report describes those events that the NRC or an Agreement State identified as AOs during fiscal year (FY) 2006. [Agreement States are those States who have entered into formal agreements with the NRC pursuant to Section 274 of the Atomic Energy Act (AEA) to regulate certain quantities of AEA material at facilities located within their borders.]

Appendix A, "Abnormal Occurrence Criteria and Guidelines for Other Events of Interest," to this report presents the NRC's criteria for selecting AOs, as well as the guidelines for selecting "Other Events of Interest." Appendix B, "Updates of Previously Reported Abnormal Occurrences," notes that the NRC does not have any updated information on events reported in the FY 2005 Report to Congress on Abnormal Occurrences. Appendix C, "Other Events of Interest," presents information concerning events that are not reportable to Congress as AOs, but are included in this report based on the Commission's guidelines, as listed in Appendix A to this report. Specifically, this appendix contains nine new events of interest on ground-water contamination due to undetected leakage of radioactive water at nuclear power plants. Appendix D, "Revised Abnormal Occurrence Criteria and Guidelines for Other Events of Interest," presents the NRC's revised criteria for selecting AOs and guidelines for selecting "Other Events of Interest." The revised criteria will be used to determine AOs for FY 2007.

For the purpose of this report, the NRC defined AOs using the criteria set forth in Appendix A. The NRC initially promulgated those criteria in a policy statement that the Commission published in the *Federal Register* on February 24, 1977 (42 FR 10950), followed by several revisions in subsequent years.

The NRC has determined that, of the incidents and events reviewed for this reporting period, only those that are described herein meet the criteria for being reported as AOs. The information reported for each AO includes the date and place, nature and probable consequences, cause(s), and actions taken to prevent recurrence.

To widely disseminate information to the public, the NRC issues *Federal Register* notices describing AOs at facilities licensed or otherwise regulated by the NRC or an Agreement State. Information on activities licensed by Agreement States is also publicly available from the Agreement States.

THE REGULATORY SYSTEM

The system of licensing and regulation by which the NRC carries out its responsibilities is implemented through the rules and regulations in Title 10 of the *Code of Federal Regulations* (10 CFR). Stakeholders are informed and involved, as appropriate, to ensure openness in the NRC regulatory process, as stipulated in the NRC Strategic Plan FY 2004-2009 (NUREG-1614,

Volume 3, August 2004). To accomplish its mission of protecting public health and safety, the NRC regularly conducts licensing proceedings, inspection and enforcement activities, operating experience evaluations, and confirmatory research. In addition, the NRC maintains programs to establish standards and issue technical reviews and studies.

The NRC adheres to the philosophy that the health and safety of the public are best ensured by establishing multiple levels of protection. These levels are normally achieved and maintained through regulations specifying requirements that ensure the safe use of radioactive materials. Those regulations contain design and quality assurance criteria appropriate for the various activities regulated by the NRC. Licensing, inspection, and enforcement programs provide a regulatory framework to ensure compliance with regulations. The NRC is striving to make the regulatory system more risk-informed and performance-based, where appropriate.

REPORTABLE EVENTS

Review and response to operating experience are essential to ensure that licensed activities are conducted safely. Toward that end, the regulations require that licensees must report certain incidents or events to the NRC. Such reporting helps to identify deficiencies and ensure that corrective actions are taken to prevent recurrence.

The NRC and industry review and evaluate operating experience to identify safety concerns. NRC disseminates the information from these reviews and evaluations to licensees through licensing activities and regulations. Operational data are maintained in computer-based data files for more effective collection, storage, retrieval, and evaluation.

X The NRC routinely disseminates publically available information and records on reportable events as defined in Title 10 of the Code of Federal Regulations at licensed or regulated facilities to the industry, the public, and other interested groups. This dissemination is achieved through public announcements and special notifications to licensees and other affected or interested groups. In addition, the NRC routinely informs Congress of significant events occurring at licensed or regulated facilities.

AGREEMENT STATES

Section 274 of the Atomic Energy Act, as amended, authorizes the Commission to enter into agreements with States whereby the Commission relinquishes and the States assume regulatory authority over byproduct, source, and special nuclear materials in quantities not capable of sustaining a chain reaction. States who enter into such agreements with the Commission are known as Agreement States. Agreement States must maintain programs that are adequate to protect public health and safety and are compatible with the Commission's program for such materials. At the end of FY 2006, there were 34 Agreement States.

In early 1977, the Commission determined that events that meet the criteria for AOs at facilities licensed by Agreement States should be included in the report to Congress. Therefore, AOs reported by the Agreement States to the NRC are included in the AO report and in the *Federal Register* notice issued to disseminate the information about each AO to the public. Agreement States report event information to the NRC in accordance with compatibility criteria established by the "Policy Statement on Adequacy and Compatibility of Agreement State Programs,"

published in the *Federal Register* notice on September 2, 1997 (62 FR 46517). The NRC has developed and implemented procedures for evaluating materials events to determine those that should be reported as AOs. The AO criteria in Appendix A are applied uniformly to events at facilities regulated by the NRC and the Agreement States.

FOREIGN INFORMATION

The NRC exchanges information with various foreign governments that regulate nuclear facilities. This foreign information is reviewed and considered in the NRC's research and regulatory activities, as well as its assessment of operating experience. Although foreign information may occasionally be referred to in the AO reports to Congress, only domestic AOs are reported.

UPDATES OF PREVIOUSLY REPORTED ABNORMAL OCCURRENCES

The NRC provides updates of previously reported AOs if significant new information becomes available. ~~These updates appear in Appendix B to this report.~~

*The NRC does not have any updated information on events reported in the
OTHER EVENTS OF INTEREST FY2005 Report to Congress on Abnormal Occurrences.*

X

The NRC provides information concerning events that are not reportable to Congress as AOs but are included in this report based on the Commission's guidelines, as listed in Appendix A. "Other Events of Interest" appear in Appendix C to this report. Appendix D presents the NRC's revised criteria for selecting AOs and guidelines for selecting "Other Events of Interest." The revised criteria will be used to determine AOs for FY 2007.

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APPENDIX B
UPDATES OF PREVIOUSLY REPORTED ABNORMAL OCCURRENCES

During this reporting period, no new significant information became available regarding any AO event that the NRC previously reported in the "Report to Congress on Abnormal Occurrences: Fiscal Year 2005."

Indeed, the maximum potential doses in all of these incidents, doses unlikely to have been received by any real person, are less than the dose received in the two hours in the Capitol (from naturally occurring ^{Radon} - 226 in the building materials).

APPENDIX C OTHER EVENTS OF INTEREST

This appendix discusses "Other Events of Interest" that do not meet the abnormal occurrence (AO) criteria in Appendix A but have been perceived by Congress or the public to be of high health and safety significance, have received significant media coverage, or have caused the NRC to increase its attention to or oversight of a program area, including a group of similar events that have resulted in licensed materials entering the public domain in an uncontrolled manner.

NUCLEAR POWER PLANTS

Ground Water Contamination Caused by Undetected Leakage of Radioactive Water

The NRC recently identified several instances of unintended releases of radioactive liquids at multiple facilities caused by undetected leakage from facility structures, systems, or components that contain or transport radioactive fluids. Subsequent water sampling in and around these plants identified tritium as the primary source of contamination. Tritium is a mildly radioactive isotope of hydrogen that occurs both naturally and during the operation of nuclear power plants. Nuclear plants normally release water containing tritium and other radioactive substances under controlled, monitored conditions that the NRC mandates to protect public health and safety.

The NRC established a Liquid Radioactive Release Lessons Learned Task Force in response to the unplanned, unmonitored releases of radioactive liquids into the environment. Although some of the events occurred in 2005, they are included in this report because the Task Force produced a report published on September 1, 2006. The report's most significant conclusion was that, although there had been industry events where radioactive liquid was released to the environment in an unplanned and unmonitored fashion, there were no instances identified where the release had an impact on public health and safety. underline ~~The task force also concluded that under the existing regulatory requirements, the potential exists for unplanned and unmonitored releases of radioactive liquids to migrate off site and into the public domain without detection.~~ The NRC staff is currently evaluating and responding to the task force recommendations.

1. Braidwood Nuclear Power Plant

In March 2005, the Illinois Environmental Protection Agency notified Exelon Generation Company LLC (the licensee) of the potential for tritium in a nearby residential well. Following notification, the licensee began monitoring ground water between the community and the Braidwood plant (Joliet, Illinois) by installing additional offsite and onsite monitoring wells to identify the source and spread of the tritium contamination.

After further characterization and identification of tritium near the north site boundary, the licensee notified the NRC and immediately suspended all further planned liquid radioactive releases until it had identified and corrected the cause of the leakage. The licensee attributed the tritium to historical leakage from vacuum breaker valves along the blowdown line that is routinely used for radioactive liquid releases. Although the Braidwood piping was below

ground, the vacuum breaker valve vaults communicate with the surface through manholes. Review of historical records found that leaks had occurred both above and below ground over the period of 1996 to 2005, and surveys confirmed that some material moved offsite. One residential well was found to contain tritium at very low concentrations.

The licensee sampled onsite and offsite monitoring well locations and found tritium contamination. Based on the information provided, there is no indication that NRC effluent release limits have been exceeded, and the release does not present a health and safety hazard to plant personnel or to the public. The licensee has corrected the cause of the leakage and has undertaken remediation activities to reduce the levels of tritium in the ground water at the Braidwood site.

2. Byron Nuclear Power Plant

On February 10, 2006, Exelon Generation Company LLC (the licensee) informed the NRC that elevated levels of tritium had been detected in several vacuum breaker valve vaults at Byron Station, near Rockford, Illinois. The licensee sampled and analyzed standing water in the blowdown line vacuum breaker vaults and found that five of the six vaults had detectable levels of tritium. The licensee suspended all radioactive liquid effluent releases through the blowdown line until it could correct the cause of the leakage.

The licensee sampled residential wells and did not find any detectable offsite contamination. By April 2006, the licensee had completed repairs to the vacuum breaker valves and vaults, including sealing the vault floors. After completing the repairs, the licensee recommenced liquid effluent discharges through the circulating water system blowdown line.

3. Callaway Nuclear Power Plant

On June 14, 2006, Union Electric Company (the licensee) notified the NRC of elevated tritium levels along the blowdown discharge pipeline at the Callaway Plant, near Fulton, Missouri. The licensee believes that the radioactive material leaked from air-relief valves during routine radiological releases through the discharge pipeline. The licensee detected radioactive cobalt and cesium in the soil inside the manholes, which are located on the licensee's property. The licensee also sampled and analyzed the well water and found no evidence of radioactive contamination in the drinking water. *nearby*

4. Dresden Nuclear Power Station

On February 11, 2006, Exelon Generation Company LLC (the licensee) at the Dresden Nuclear Power Station, near Morris, Illinois, found that a sample from a monitoring well near the condensate storage tanks indicated an increase in tritium concentration. The licensee had installed this monitoring well following previous leaks in underground piping from these tanks, with the most recent leakage identified in 2004. The licensee isolated the piping and realigned the system to bypass the leaking section of pipe. Although the leak location has not been fully identified, the licensee is replacing the suspect piping and continuing its evaluation and onsite monitoring. No migration of detectable tritium has occurred offsite.

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⊗ The licensee is continuing to evaluate the extent of contamination around the manholes and will consider remediation as part of its characterization efforts.

5. Haddam Neck Station

The Haddam Neck Station ceased operations about 10 years ago and is being decommissioned under an approved NRC license termination plan. The monitoring programs of the Connecticut Yankee Atomic Power Company (the licensee) have not identified any offsite ground water contamination associated with plant operations.

In December of 2005, the licensee began its 18-month groundwater monitoring for its License Termination Plan. The licensee initially identified tritium, cobalt-60, cesium-137, and strontium-90 in the onsite ground water and/or soil samples. The licensee has removed a large amount of soil and bedrock and has backfilled the excavated areas with clean fill (uncontaminated soil). Although the licensee has substantially reduced residual contamination levels, recent ground water sampling results have identified residual radioactive contamination. The licensee has completed dose assessments for the existing onsite ground water contamination in accordance with the license termination plan.

6. Indian Point Nuclear Generating Station, Units 1, 2, and 3

In September 2005, Entergy Nuclear Operations (the licensee) identified contaminated water leaking from cracks in the Unit 2 spent fuel pool (SFP) at the Indian Point Nuclear Power Plant (near Buchanan, New York). It subsequently discovered tritium-contaminated ground water in a monitoring well located on site in the Unit 2 transformer yard. Upon discovery of this condition, the licensee initiated extensive efforts to characterize the nature and source of the ground water contamination. The licensee installed a series of instrumented monitoring wells, performed a comprehensive hydrological and geophysical assessment of the site, and enhanced onsite and offsite radiological environmental monitoring. In an effort to reduce Unit 2 SFP leakage, the licensee has inspected the SFP and carried out repairs at locations where there were indications of leakage.

In addition to tritium, the licensee detected the radionuclides nickel-63, cesium-137, strontium-90, and cobalt-60 in the onsite ground water. The licensee suspects that the presence of these isotopes is the result of leakage from the Unit 1 SFP, which resulted in the contamination of ground water locally. Even though Unit 1 has been permanently shut down since 1974, its SFP still contains expended fuel and radioactive water. Currently, the licensee operates a filter/demineralizer system in the SFP to reduce the concentration of radioactive material that may continue to leak from the Unit 1 facility until the fuel is removed in 2008:

7. Palo Verde Nuclear Generating Station

On March 1, 2006, the Arizona Public Service Company (the licensee) identified tritium above the EPA drinking water standard in a water sample collected from an onsite test hole at the Palo Verde Nuclear Generating Station, Unit 3, near Phoenix, Arizona. The licensee concluded that most of the tritium contamination was the result of past operational practices in which the licensee had performed batch releases from the evaporator system during rainy days. The rain condensed these releases of gaseous tritiated vapor, and the resulting onsite water runoff was absorbed into the ground and also ran into the storm drain-system.

The licensee will continue removing fuel from the Unit 1 SFP so that the pool can be drained to prevent further leakage.

spent
SFP into a drain collection system. Treated water is monitored and released through a discharge point in accordance with a permit.

The licensee determined that the tritiated water at elevated levels was confined on site. It found no elevated levels in wells located outside the protected area and no evidence of an offsite release of the radioactive water.

8. Perry Nuclear Power Plant

On March 28, 2006, a quarterly sample taken from a manhole in the underdrain system at the Perry Nuclear Power Plant, near Painesville, Ohio, indicated increased concentrations of tritium. FirstEnergy Nuclear Operating Company (the licensee) attributed the tritium to a leaking flange in the feedwater system venturi. The leak occurred within the plant boundary, and the leakage was diverted to the licensee's normal effluent release pathway, without any apparent abnormal release to the environment. The licensee has repaired the leaking flange, and tritium concentrations have decreased.

9. Three Mile Island Nuclear Power Plant

On May 17^{and May 27}, 2006, personnel at the Three Mile Island Nuclear Power Plant, near Harrisburg, Pennsylvania, identified water coming from a utility access manway in the owner-controlled parking lot. ~~The licensee initially determined the source of the water to be a leak in a domestic water line since it was the only known source of water in the area.~~ The AmerGen Energy Company LLC (the licensee) subsequently pumped out 2000 gallons of water ~~from~~ ^{to} the asphalt parking lot ~~after each event~~ X

On June 1, 2006, the licensee sampled and analyzed the water from the manway and identified elevated concentrations of tritium. Samples taken from four nearby ground water monitoring wells indicated no elevated tritium in the surrounding ground water. The licensee repaired the source of leakage, continued enhanced monitoring of ground water wells, and verified that no tritiated water had left the owner-controlled area via the underground cable conduit.

which was water from the condensate system traveling through an underground telephone cable conduit run,

APPENDIX D
REVISED ABNORMAL OCCURRENCE CRITERIA AND GUIDELINES FOR OTHER EVENTS
OF INTEREST

The following criteria which became effective on October 12, 2006 will be used to determine whether to consider events for reporting as AOs for FY 2007:

I. For All Licensees

A. Human Exposure to Radiation from Licensed Material

1. 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 mSv (25 rem) or more; or an annual sum of the deep dose equivalent (external dose) and committed dose equivalent (intake of radioactive material) to any individual organ other than the lens of the eye, the bone marrow, and the gonads of 2,500 mSv (250 rem) or more; or an annual dose equivalent to the lens of the eye of 1 Sv (100 rem) or more; or an annual sum of the deep dose equivalent and committed dose equivalent to the bone marrow of 1 Sv (100 rem) or more; or a committed dose equivalent to the gonads of 2,500 mSv (250 rem) or more; or an annual shallow-dose equivalent to the skin or extremities of 2,500 mSv (250 rem) or more.
2. Any unintended radiation exposure to any minor (an individual less than 18 years of age) resulting in an annual TEDE of 50 mSv (5 rem) or more, or to an embryo/fetus resulting in a dose equivalent of 50 mSv (5 rem) or more.
3. Any radiation exposure that has resulted in unintended permanent functional damage to an organ or a physiological system as determined by a physician.

- B. Discharge or dispersal of radioactive material from its intended place of confinement which results in the release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceeds 5,000 times the values specified in Table 2 of Appendix B to 10 CFR Part 20, unless the licensee has demonstrated compliance with § 20.1301 using § 20.1302(b)(1) or § 20.1302(b)(2)(ii). This criterion does not apply to transportation events.

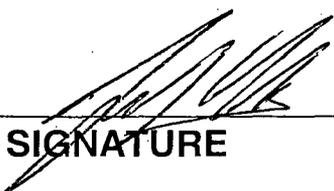
NOTATION VOTE
RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: COMMISSIONER MERRIFIELD
SUBJECT: SECY-07-0037 - REPORT TO CONGRESS ON
ABNORMAL OCCURRENCES: FISCAL YEAR 2006

Approved Disapproved Abstain

Not Participating

COMMENTS: Below Attached None



SIGNATURE



DATE

Entered on "STARS" Yes No

Comments from Commissioner Merrifield on SECY-07-0037:

I approve the staff recommendations in SECY-07-0037 with several revisions as described below.

First, I agree with the revisions proposed by Commissioner McGaffigan, and in particular his vote to delete the tritium leak discussion in Appendix C. I realize that there was significant public and congressional interest in this topic. However, all of the Members of Congress who were interested in this issue have been well informed on this topic. I agree with Commissioner McGaffigan that it is not appropriate to include issues that result in very small fractions of a rem of exposure in a report where the primary focus is on large rem exposure. If the majority of the Commission supports retention of the topic in Appendix C, I support Commissioner McGaffigan's alternative revisions to Appendix C.

I also approve the attached additional revisions as well.



Handwritten signature and date: 3/9/07

**ABNORMAL OCCURRENCES
IN FISCAL YEAR 2006**

NUCLEAR POWER PLANTS

During this period, no events at U.S. nuclear power plants were significant enough to be reported as abnormal occurrences (AOs) based on the criteria in Appendix A to this report.

FUEL CYCLE FACILITIES
(Other Than Nuclear Power Plants)

During this reporting period, one event at an NRC-licensed fuel fabrication facility was significant enough to be reported as an AO based on the criteria in Appendix A to this report.

06-01 Spill of High-Enriched Uranium Solution at Fuel Fabrication Facility

Criterion III, "For Fuel Cycle Facilities," of Appendix A to this report states, in part, that a major condition or significant event that seriously compromises the ability of a safety system to perform its designated function that requires immediate remedial action to prevent a criticality, radiological, or chemical process hazard will be considered for reporting as an AO.

Date and Place — May 4, 2006, location withheld for security reasons

Nature and Probable Consequences — In a facility authorized to process high-enriched uranium (HEU), a transfer of HEU solution through a transfer line resulted in a portion of the HEU solution, approximately 35 liters, leaking into a glovebox where criticality was possible and subsequently to the floor where criticality was also possible because of the presence of an elevator pit.

Immediately before the event, the facility operator decided to move the unused filter glovebox to another location. Workers opened and drained the filters so that the filter glovebox could be moved. After draining the filters, workers failed to reseal the system tightly. During the next transfer of HEU solution through the line, HEU solution leaked into the filter glovebox. On several occasions before the event, workers had reported signs of a yellowish liquid in the filter glovebox. Supervisors had failed to fully investigate the reports because they assumed the yellowish liquid was natural uranium solution which had been used to initially test the ~~Blended Low-Enrichment Uranium~~ process. ~~The downblending facility, where the spill occurred, was constructed in 2003 and licensed on January 13, 2004.~~

Criticality was possible in the filter glovebox because of the size and shape of the glovebox and because there were no controls in the filter glovebox to prevent accumulation of solution. The solution leaked out of the filter glovebox through uncontrolled drains to the floor. Investigation of the event revealed that the floor contained an uncontrolled accumulation point, an elevator pit, where criticality was also possible. In different circumstances, the total volume of the transfer would have been more than enough for criticality to be possible in the filter glovebox or the elevator pit. If a criticality accident had occurred in the filter glovebox or the elevator pit, it is

likely that at least one worker would have received an exposure high enough to cause acute health effects or death. The NRC conducted a team inspection to determine the root causes of the event and performed a series of three readiness reviews before allowing this portion of the facility to restart. The NRC issued an order to the licensee delineating specific actions designed to address this and other performance issues at the facility.

Cause(s) — Failure to maintain configuration control of facility equipment and failure to comply with procedures.

Actions Taken to Prevent Recurrence — The operator stopped all processing of HEU in the affected processing area, removed the enclosure and associated piping, filled in an uncontrolled accumulation point (the elevator pit) with concrete, and conducted an extensive review to identify any similar configuration issues.

This event is closed for the purpose of this report.

OTHER NRC LICENSEES

(Industrial Radiographers, Medical Institutions, etc.)

During this reporting period, two events at NRC-licensed or regulated facilities were significant enough to be reported as AOs based on the criteria in Appendix A to this report.

06-02 Medical Event at Bozeman Deaconess Hospital in Bozeman, Montana

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 — May 9, 2006, Bozeman, Montana

Nature and Probable Consequences — The licensee reported that a patient was prescribed a brachytherapy treatment of 145 Gy (14,500 rad) to the prostate gland for prostate cancer using 82 iodine-125 seeds, but instead received a 130 Gy (13,000 rad) dose to an unintended treatment site. The brachytherapy seeds were implanted under ultrasound guidance; however, a post-treatment computerized tomography scan confirmed that only 10 seeds were implanted in the prescribed location of the prostate, resulting in a dose of 8.6 Gy (860 rad) delivered to the intended treatment site. ~~The urologist implanted 69 seeds inferior to the prostate in the wrong treatment site and recovered the remaining 3 seeds.~~ The referring physician and the patient were informed of this event and were advised that the patient may experience discomfort during urination. The NRC staff conducted a reactive onsite inspection on May 16, 2006. An NRC contracted medical consultant experienced in radiation oncology reviewed the case and agreed with the licensee's analysis and conclusions. An NRC inspection report has been issued.

Concerning the 72 seeds not in the intended location treatment site, the urologist was able to recover 3 seeds and determined that 69 seeds were implanted₂ inferior to the prostate in the wrong treatment site.

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: COMMISSIONER JACZKO
SUBJECT: SECY-07-0037 - REPORT TO CONGRESS ON
ABNORMAL OCCURRENCES: FISCAL YEAR 2006

Approved X Disapproved _____ Abstain _____

Not Participating _____

COMMENTS: Below _____ Attached X None _____



SIGNATURE

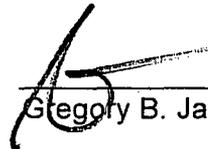
3/6/07

DATE

Entered on "STARS" Yes X No _____

**Commissioner Jaczko's Comments on SECY-07-0037
Report to Congress on Abnormal Occurrences: Fiscal Year 2006**

I approve the staff's recommendation to provide the Fiscal Year 2006 Abnormal Occurrence report to Congress and the proposed letters forwarding the report. In providing the report to Congress the staff should revise the report to provide the name and location of the fuel cycle facility where the loss of criticality controls occurred. Moreover, the fact that Nuclear Fuel Services in Erwin, Tennessee is licensed to downblend highly-enriched uranium can be found in press releases and other documents made available to the public on our website. Given this information, I see no reason for continuing to withhold information already publicly available.


Gregory B. Jaczko

3/6/07
Date

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: COMMISSIONER LYONS
SUBJECT: SECY-07-0037 - REPORT TO CONGRESS ON
ABNORMAL OCCURRENCES: FISCAL YEAR 2006

Approved X Disapproved _____ Abstain _____

Not Participating _____

COMMENTS: Below _____ Attached X None _____



Peter B. Lyons

SIGNATURE

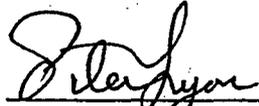
21 28 107

DATE

Entered on "STARS" Yes X No _____

Commissioner Lyons' Comments on SECY-07-0037

I approve the staff's recommendation to provide the Fiscal Year 2006 Abnormal Occurrence report to Congress with an edit to the proposed congressional letter. The last sentence of the first paragraph, should be revised to reflect that the Commission reports significant events from both a public health and safety, and security standpoint and other events that the Commission determines may be of interest to Congress.


Peter B. Lyons 2/28/07
Date