

# NMSS Licensee Newsletter



U.S. Nuclear  
Regulatory  
Commission

Office of Nuclear  
Material Safety  
and Safeguards

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## DELIBERATE MISCONDUCT BY UNLICENSED PERSONS: NRC EXTENDS ENFORCEMENT SANCTIONS TO EMPLOYEES AND OTHER INDIVIDUALS

- A radiographer knows that he is required to conduct a survey each time the source is retracted, but deliberately fails to do so, to save time.
- A nuclear medicine technologist, although s(he) performs the daily constancy check of the dose calibrator on weekdays, deliberately does not bother to do the check when the dose calibrator is used for patient doses on weekends.
- A well-logger knowingly provides inaccurate information during a Nuclear Regulatory Commission (NRC) investigation.
- An employee at an irradiator facility deliberately defeats a radiation alarm.
- A manager directs an employee to omit significant information during an NRC inspection.
- A consultant knowingly includes inaccurate information in a request for a license amendment that the licensee submits to NRC.

What do these examples have in common? They demonstrate deliberate wrongdoing on the part of employees and consultants who do not hold NRC licenses, but who are now subject to NRC enforcement action under a rule change published in the *Federal Register* on August 15, 1991 (56 FR 40664). This change became effective on September 16, 1991.

Under the new rule, unlicensed persons are subject to NRC enforcement action for deliberate misconduct if: (1) causes an NRC licensee to be in violation of any NRC requirement, or (2) would have caused the licensee to be in violation, if the misconduct had not been detected in time. Enforcement action may also be taken against an individual who deliberately provides incomplete or inaccurate information to NRC, a licensee, or licensee contractor, provided that the information is relevant to NRC regulatory activities.

The rule covers licensee employees; consultants; contractors, subcontractors, and their employees; and others who knowingly provide goods or services for activities regulated by NRC. Specific knowledge of the NRC license or the NRC requirement that would be violated is not necessary; it is enough for the individual to know the activity is regulated by NRC and that the act would be a violation of company procedures or policy. The rule does not apply to violations caused by simple error, misjudgment, miscalculation, ignorance, or confusion, on the part of an individual.

Depending on the circumstances, the action that NRC takes against the person might be an Order that prohibits the person from further involvement in NRC-licensed activities for a specified period of time. The person also could be required to inform any prospective employee (or customer) engaged in NRC-licensed activities that the person has been subject to an NRC Order. Monetary penalties as well as criminal sanctions may be used if the person fails to comply with the Order.

Orders associated with enforcement actions are published in the *Federal Register* and in an NRC public document known as NUREG-0940. Orders are normally the subject of a press release. In addition, NRC has established a system of records that will include a list of all persons currently subject to an Order that affects their participation in licensed activities. This compilation will be made available to materials licensees and members of the public, on request.

NRC has a long-standing practice of holding employers accountable for the acts of their employees, contractors, and agents. Thus, in cases where enforcement action is taken against an individual employee at a licensed facility, NRC normally will also take related enforcement action directly against the holder of the NRC license, as appropriate.

This rule change affects portions of the NRC regulations in 10 CFR Parts 2, 30, 40, 50, 60, 61, 70, 72, 110, and 150, as well as the NRC Enforcement Policy published in Part 2, Appendix C. For complete details, readers should refer to the *Federal Register* notice cited above. Copies of the *Federal Register* notice were sent to all NRC licensees.

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INVESTIGATION AND ANALYSIS OF MEDICAL  
THERAPY MISADMINISTRATION EVENTS  
OCCURRING IN 1992

The Division of Industrial and Medical Nuclear Safety (IMNS), Office of Nuclear Material Safety and Safeguards (NMSS), has tasked the Idaho National Engineering Laboratory (INEL) to investigate and analyze medical therapy misadministration events that occur within the Nuclear Regulatory Commission's (NRC's) jurisdiction during calendar year 1992.

These investigations are designed to provide insights into the root causes of medical misadministrations and to assess the risk significance of the events. In addition, licensee corrective actions taken in response to the events will be identified and compared to existing regulations in 10 CFR Part 35 and requirements in the Quality Management (QM) Rule, effective January 27, 1992. Data will be collected from a combination of interviews with involved licensee personnel and review of information contained in relevant records.

To accomplish these investigations, a team of medical experts, including physicians, medical physicists, radiation therapy dosimetrists, and technologists with expertise in teletherapy, brachytherapy, or radiopharmaceutical therapy will be dispatched to the site of the misadministration. The INEL team will work in parallel with the NRC regional inspection team, thus ensuring access to available data, minimizing duplication of effort, and eliminating any unnecessary burden on the licensee. The region investigating the misadministration will oversee the INEL team's activities.

Comments, and suggestions you may have for information that is not currently being included, that might be helpful to licensees, should be sent to:

E. Kraus  
NMSS Licensee Newsletter Editor  
Office of Nuclear Material Safety and Safeguards  
One White Flint North, Mail Stop 6-E-6  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

It is anticipated that approximately six to eight such investigations will be carried out in 1992. The team will produce a report documenting the findings of each investigation. The NRC contact for this project is Dr. Patricia Rathbun (301-504-1407).

#### NEW INCIDENT-REPORTING REQUIREMENTS

On October 15, 1991, the final rule on notification of incidents (56 FR 40757) went into effect. The final rule has deleted paragraphs (a)(3), (a)(4), (b)(3), and (b)(4) in 10 CFR 20.403, requiring reports of loss of operations and cost of damage. These requirements have been replaced by new reporting requirements in 10 CFR 30.50, 10 CFR 40.60, and 10 CFR 70.50. Licensees are now required to report:

As soon as possible, but not later than 4 hours after discovering an event that prevents immediate protective actions necessary to avoid exposures or releases exceeding regulatory limits. Only the prevention of actions that personnel would normally be able to take is reportable.

Within 24 hours of discovering an unplanned contamination event that (1) requires access to the contaminated area to be restricted for more than 24 hours, and (2) involves a quantity of material greater than 5 times the lowest annual limit on intake specified in Appendix B of the new Part 20 (56 FR 23360), and (3) requires access to be restricted for a reason other than to allow isotopes with a half-life less than 24 hours to decay.

Within 24 hours of discovering a safety equipment failure that (1) involves equipment required by regulation or license condition to prevent releases and/or overexposures, or to mitigate the consequences of an accident, and (2) involves equipment that was required to be available and operable when it failed, and (3) occurs when no redundant equipment is available and operable to perform the required safety function. Manual equipment is not considered redundant if automatic equipment is required.

Within 24 hours of discovering an event that requires unplanned medical treatment, in a medical facility, of an individual with spreadable contamination in the individual's clothing or body.

Within 24 hours of discovering an unplanned fire or explosion that (1) damages licensed material or devices, containers, or equipment containing licensed material, and (2) involves a quantity of material greater than 5 times the lowest annual limit on intake specified in Appendix B of the new Part 20; and (3) affects the integrity of the licensed material or its container.

Initial reports must be made by telephone to the NRC Operations Center, at 301-951-0550. Written follow-up reports must be submitted within 30 days of the initial report. Examples of reportable events are provided in the

discussion that was published with the final rule on August 16, 1991 (56 FR 40757).

GUIDES ISSUED AUGUST 8, 1991-NOVEMBER 4, 1991

#### DRAFT GUIDES

- "Air Sampling in the Workplace," Task DG-8001; R.G. 8.25 (Rev. 1)
  1. Issued 9/91
  2. Contact: Dr. Stephen McGuire, 301-492-3757
- "Assessing External Radiation Doses from Airborne Radioactive Materials," Task DG-8005
  1. Issued 11/91
  2. Contact: Alan Roecklein, 301-492-3740

RULEMAKINGS PUBLISHED AUGUST 8, 1991-OCTOBER 29, 1991

#### FINAL RULES

- "Notifications of Incidents"
  1. Published 8/16/91
  2. Contact: Joseph Mate, 301-492-3795
- "Revisions to Procedures to Issue Orders; Deliberate Misconduct by Unlicensed Persons"
  1. Published 8/15/91
  2. Contact: James Lieberman, 301-504-2741  
Mary L. Wagner, 301-504-1683
- "Revision of Fee Schedules, 100% Fee Recovery"
  1. Published 8/9/91 (Correction)
  2. Contact: James Holloway, 301-492-3401
- "Change in Commercial Telephone Number for Region V"
  1. Published 8/21/91
  2. Contact: David L. Meyer, 301-492-7086

#### PROPOSED RULES

- "Decommissioning Regulations: Recordkeeping and Termination for Decommissioning, Documentation Additions"
  1. Published 10/7/91
  2. Contact: Carl Feldman, 301-492-3883

• "Uranium Enrichment Regulations"

1. Published 9/16/91
2. Contact: Charles Nilsen, 301-492-3834

REVISED 10 CFR PART 20: QUESTIONS AND ANSWERS

This article is the fourth in a series that will discuss the important changes, in radiation-protection standards, made by the sweeping revisions to the new 10 CFR Part 20. The revised Part 20 was published in the *Federal Register* on May 21, 1991.

As a method of helping to learn and understand the new changes in revised Part 20, the following questions and answers are provided.

1. Part 20 requires that "labeled packages" be monitored. Is it correct to assume that only packages with White I, Yellow II, or Yellow III labels must be monitored, and that marked packages (low specific activity (LSA) or radioactive markings) are not required to be monitored?

Based on the revised Part 20 Statement of Considerations (56 FR 23380), it is correct to assume that only packages with Department of Transportation (DOT) White I, Yellow II, or Yellow III labels need to be monitored.

2. 10 CFR 20.1101 established new requirements for licensees' radiation protection programs, including requirements to implement a program, review it, and use as low as is reasonably achievable (ALARA) procedures. What would a typical radiography licensee have to do under 10 CFR 20.1101 beyond what that licensee is doing now?

The radiography licensee must ensure that the radiation protection program is documented and review the program's content and implementation periodically (at least annually). If the licensee does not have a radiation protection program, then such a program must be developed. Regulatory Guide 8.16 provides some guidance for implementation of an ALARA program.

3. Should the radiation protection program referenced in 10 CFR 20.1101 be a stand-alone document or can it be the sum of many documents or manuals?

10 CFR 20.1101 requires a documented radiation protection program. This documentation does not have to be a stand-alone document, but it must be reviewed annually.

4. Do posting requirements apply to the hospital room of a hospitalized nuclear medicine patient, if the

patient received less than 30 mCi and the dose rate at 1 meter is greater than 5 mrem/hr?

No, the hospital room is not required to be posted provided that there are personnel in attendance who will take the necessary precautions to prevent the exposure of individuals to radiation or radioactive material in excess of the limits established in the revised Part 20 and to operate within the ALARA provisions of the licensee's radiation protection program. Note that only one of the three conditions in 10 CFR 20.1903(b)(1) needs to be met, and that one has been met by the patient receiving less than 30 millicuries.

5. The definition of a very high radiation area (10 CFR 20.1003) and the requirement for control of access to very high radiation areas specify an absorbed dose of 500 rads in an hour. Is this a deep dose, a shallow dose, or an eye dose?

The 500-rad dose is intended to be a deep dose, evaluated at a tissue depth of 1 cm (1000 mg/cm<sup>2</sup>).

6. Must bioassay be performed for a worker who, without respiratory protection, is likely to receive an intake in excess of the applicable annual limit on intake (ALI), but who is not likely to receive such an intake with respiratory protection?

Yes, as indicated in a note in the revised 10 CFR Part 20 "Statement of Considerations" (56 FR 23377), the concentrations to be used (prospectively) for evaluating monitoring thresholds are those of the ambient atmosphere before credit is taken for respiratory protection factors. Routine periodic bioassays for respirator users are required to demonstrate the effectiveness of the licensee's respiratory protection program.

CLARIFICATION OF ANSWERS IN ARTICLE, "REVISED 10 CFR PART 20: QUESTIONS AND ANSWERS" (SEPTEMBER 1991 NMSS LICENSEE NEWSLETTER)

The September 1991 NMSS Licensee Newsletter included an article on "Revised 10 CFR Part 20: Questions and Answers." Two of the answers could have been confusing to some licensees. To clarify those issues, we are providing the following.

2. What are the requirements for including dose from non-licensed sources (x-rays, accelerators, naturally occurring radioactive material) as part of occupational dose?

ANSWER

The combined total of doses from licensed and unlicensed sources (other than background and medical

treatment) must be below the Part 20 occupational dose limits. The requirement for inclusion of all doses from non-licensed sources is intended to account for all occupational doses received while working in activities involving radiation, or with radioactive materials. Thus, licensees must sum the doses from non-licensed sources to the doses from licensed sources, to obtain the total dose, for comparison to the occupational limits of 100 mrem per year.

6. A licensee monitors a worker for both external and internal exposure, but the internal exposure for the year is less than 10 percent of the annual limit on intake. Does the licensee add it to the external exposure?

It depends upon whether the reason for monitoring the individual was because s(he) was likely to exceed the 0.5-rem monitoring threshold. If both internal and external doses were required to be monitored, then they must be summed. If either the internal or external dose wouldn't have required monitoring, then it wouldn't have to be summed.

## MIXED WASTE REGULATORY UPDATE

### *NRC/EPA Joint Guidance Documents*

The Nuclear Regulatory Commission (NRC) and the Environmental Protection Agency (EPA) are currently developing two joint guidance documents, for use by Federal and State agencies and the regulated community, on the requirements for mixed waste testing and storage. These two guidance documents will outline procedures that will allow mixed waste generators and operators of treatment, storage, and disposal facilities to test and store their waste in a manner that complies with EPA requirements under the Resource Conservation and Recovery Act (RCRA) and NRC requirements under the Atomic Energy Act (AEA), while maintaining worker exposures as low as is reasonably achievable (ALARA). Before formal publication, NRC and EPA will solicit comments on the guidance from interested individuals and selected users. The agencies have targeted December 1991 for issuing the testing guidance for public comment. A date for requesting comments on the storage guidance has not yet been determined. Interested individuals should monitor the *Federal Register* for Notices of Availability and Requests for Comment.

### *EPA's Policy Statement on Mixed Waste Storage*

On August 29, 1991, EPA announced, in the *Federal Register* (56 FR 42730), an enforcement policy for the storage prohibition, at Section 3004(j) of RCRA, for facilities that generate mixed waste. Under the policy, EPA will ascribe low enforcement priority to violations involving the storage of mixed wastes subject to the Land Disposal Restrictions, under certain conditions. The policy outlines what EPA considers to be indicators of environmentally

responsible operation in determining the civil enforcement priority of storage violations at particular mixed waste generator facilities. The policy also details those wastes and generators to which this policy will apply and the duration of the policy.

### *Mixed Waste Enforcement Action at NFS-Erwin*

On August 8, 1991, EPA issued a Complaint and Compliance Order to Nuclear Fuel Services, Inc. (NFS) of Erwin, Tennessee. The Order stated that NFS was operating a hazardous waste generation and treatment facility without an RCRA permit, or interim status, and was disposing of the waste in a facility that was not authorized to receive hazardous waste. The alleged violations involve a bottle-washing operation that produces a freon waste containing enriched uranium. Although the State of Tennessee was granted mixed waste authorization from EPA in 1987, EPA initiated the enforcement action based on its identification of the potential violations. EPA has proposed a penalty of \$993,461 in the Complaint. The licensee has requested a hearing and intends to contest the order.

If you have any questions, please contact NRC staff members Mike Weber at 301-504-1298, or Nick Orlando at 301-504-2566.

### **NRC, EPA, AND STATES SIGN MEMORANDUM OF UNDERSTANDING ON RADON RELEASES FROM URANIUM MILL TAILINGS**

On October 24, 1991, the Nuclear Regulatory Commission (NRC), the Environmental Protection Agency (EPA), and the States of Colorado, Texas, and Washington (Affected Agreement States) signed a Memorandum of Understanding (MOU) setting out a series of actions that, when completed, will minimize regulatory duplication and conserve resources in the control of radon emissions from NRC- and Agreement State-licensed uranium mill tailings sites.

On December 15, 1989, pursuant to Clean Air Act (CAA) authority, EPA promulgated a radon flux standard and timely closure provision (40 CFR Part 61, Subparts T and W) to control radon releases from uranium mill tailings disposal and operation. Under authority of the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978, NRC and the Agreement States also regulate radon releases from these sites. EPA and NRC programs overlap each other. In recent months, there has been heightened concern over this regulatory duplication, because certain facilities must be in compliance with Subpart T by December 15, 1991, and many sites face the prospect of being unable to comply with the standard. Because of this fast-approaching deadline, NRC and the affected Agreement States began, in July 1991, a series of discussions with EPA about a wide range of options for reconsidering Subparts T and W, including rescinding the standards, based on a finding that NRC

and Agreement State regulatory programs protect the public health and safety with an ample margin of safety (i.e., a determination under Section 112(d)(9) of the CAA).

NRC and the Affected Agreement States are continuing to fulfill their MOU commitments, including timely review and approval of mill tailings disposal site closure plans and solicitation of firm closure schedules from each licensee, for incorporation as an enforceable license condition.

For further information contact:

Meg Harvey, Decommissioning and Regulatory Issues Branch, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, at 301-504-2522.

#### NRC REQUESTS COMMENTS ON RECORDKEEPING RULE

On October 7, 1991, the Nuclear Regulatory Commission announced, in the *Federal Register* (56 FR 50524), that it proposed to amend its regulations at 10 CFR Parts 30, 40, 70, and 72, to require licensees to maintain information, in a single document, identifying areas where licensed materials were used or stored. The amended regulations would apply to licenses issued for the possession of byproduct material, source material, special nuclear material, and the independent storage of spent nuclear fuel and high-level waste. Licensees would be required to maintain documentation listing the areas where these materials were used or stored for restricted and unrestricted areas, areas where spills have occurred, and locations and contents of current and previous burial areas within the site. The location and a description of equipment involved in the licensed activity that will remain onsite at the time of license termination would also be required to be listed. The *Federal Register* announcement requested all interested parties to submit comments on these proposed new requirements no later than December 23, 1991.

These new regulations are in response to concerns expressed by the General Accounting Office and the Environment, Energy, and Natural Resources Subcommittee of the House Committee on Government Operations. Before terminating a license, the Commission must determine that all areas involved in licensed operations have been decontaminated in accordance with Commission regulations. However, the Commission could inadvertently release contaminated facilities and sites for unrestricted use because of poor or insufficient knowledge as to the location within a licensee's site where licensed activities were conducted. Licensees are authorized to possess and use licensed materials only in areas described in their license application or license conditions. However, a licensee's facility could include large areas of land

and many individual buildings identified only as an address on the license. In addition, over the course of many years, corporate memory about rooms, buildings, areas, or onsite burial grounds that were used for licensed operations may be lost.

These new regulations would require licensees to maintain a listing, contained in a single document, of all areas that have been contaminated. This listing would include:

1. All areas designated and formerly designated as restricted areas, defined under 10 CFR 20.3(14) or 10 CFR 20.1003;
2. All areas, other than restricted areas, where radioactive materials are, or have been, used, possessed, or stored, in quantities greater than those listed in 10 CFR Part 20, Appendix C to 10 CFR 20.1001-20.2401;
3. All areas, other than restricted areas, where spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site have occurred that required reporting pursuant to 10 CFR 30.50(b)(1) or (4), 10 CFR 40.60(b)(1) or (4), and 10 CFR 70.5(b)(1) or (4), including areas where subsequent cleanup has removed the contamination; and
4. The location of all known current and previous onsite burial areas and radioactive contents.

Before license termination, a list of locations and descriptions of equipment involved in the licensed operation that is to remain onsite would be required.

The Commission has proposed to except certain types of licensees from the rulemaking and is soliciting comments on these exceptions. These exceptions would include activities involving radioactive materials with half-lives of 10 days or less for Part 30 licensees, sealed sources used at "temporary" job sites outside of the licensee's permanent facility, and areas containing depleted uranium used only for shielding or as penetrators in unused munitions. The *Federal Register* Notice should be consulted for a detailed discussion of these exceptions.

For further information contact:

Dr. Carl Feldman, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, at 301-492-3883.

#### SELECTED SIGNIFICANT EVENTS REPORTED TO THE U.S. NUCLEAR REGULATORY COMMISSION (NRC)

Event 1: Potential Criticality Accident at the General Electric Nuclear Fuel and Component Manufacturing Facility in Wilmington, NC

Date Reported: May 29, 1991

Licensee: General Electric Company  
Wilmington, NC

On May 29, 1991, the licensee notified NRC Region II that it had identified a potential criticality safety problem. During the morning of May 29, the licensee found higher than expected amounts of uranium in a favorable geometry vessel in its solvent-extraction systems, because of earlier problems with controls and equipment in that system. The licensee shut down the solvent-extraction process and subsequently discovered higher than expected amounts of uranium had also been improperly transferred into an unfavorable-geometry waste tank. Licensee management was notified and a technical evaluation team was convened. In addition, sparging (i.e., mixing) was initiated in this tank, to minimize the criticality potential. During the afternoon of May 29, the licensee notified NRC Region II of the incident. Later, the licensee also began uranium recovery operations from this tank via a centrifuge linked to the tank.

Also on May 29, NRC dispatched a Region II site team, which arrived early during the morning of May 30. At 6:38 a.m., EDT, on May 30, after discussions with the NRC response centers, the licensee declared an alert, in accordance with its Radiological Contingency and Emergency Plan.

On May 31, NRC issued a letter confirming the licensee's agreement to refrain from transferring material in certain portions of the waste streams, refrain from using the solvent-extraction system, and cooperate with the Incident Investigation Team (IIT). The licensee continued to remove uranium by centrifuge from the tank, through June 1. On June 1, the licensee had transferred sufficient amounts of solution containing uranium from the tank via the centrifuge process and to other nearby tanks to reduce the uranium in the tank to an amount less than the criticality safety limit. The licensee then terminated the alert status.

An IIT, arriving onsite June 2, was directed to determine the circumstances associated with the event, identify the probable causes of the event, and make appropriate findings and conclusions that would form the basis for any necessary follow-on actions. It left the site June 13. A Region II inspection team continued to monitor the licensee's followup actions at the site from May 30 through July 18.

On June 25, the licensee met with NRC to discuss the status of the systems shut down as a result of the event, the corrective actions needed before restart and the longer-term corrective actions needed at the facility. The licensee certified that the corrective actions for restart of the waste systems, including a procedure for reporting all types of events to NRC, were complete in letters dated July 4 and July 7, 1991. NRC authorized the licensee to restart certain waste-stream systems on July 7.

The IIT identified numerous problems at the plant (inadequate management oversight, design deficiencies, procedural noncompliance, inadequate incident investigation, and a general deterioration of criticality controls) and concluded that three interrelated root causes contributed to the incident:

1. There was a pervasive licensee attitude that a nuclear criticality was not a credible accident scenario. Although the licensee understood and recognized that a nuclear criticality with low-enriched uranium was technically possible, and that there were regulatory requirements to establish measures to guard against such an accident, the licensee's perception was that the risk was so low that a criticality accident inherently would not happen.
2. Licensee management did not provide effective guidance and oversight of licensed activities, to ensure that operations were conducted in a safe manner.
3. There was a deep-seated, production-minded orientation within the licensee's organization that was not sufficiently tempered by a "safety-first" attitude, particularly regarding nuclear criticality safety.

In addition, the IIT identified various weaknesses in NRC regulatory guidance, licensing, and inspection programs that had the effect of contributing to the incident.

Corrective actions included the following: system walk-downs and verifying that documentation matched current plant configuration; revising procedures; retraining of operators; revamping sampling to ensure adequacy for measurement of uranium; sensitivity training of all plant personnel to follow procedures and report problems; documenting a scheme for reporting events; instituting additional management oversight of operators; establishing an audit system; and establishing a long-term plan to improve performance in staffing, emergency response, equipment reliability, and engineered systems to replace administrative criticality controls. The licensee reports the status of short- and long-term corrective actions to NRC Region II on a biweekly basis. The licensee will present to NRC its corrective actions for restart of the solvent-extraction system. The licensee presented an outline of these corrective actions to NRC in an August 9, 1991, letter.

The special NRC Region II inspection team inspected all corrective actions taken by the licensee in response to the event.

The NRC IIT formal report was published in August 1991 as NUREG-1456.

Event 2: Multiple Medical Teletherapy  
Misadministrations

Licensee: St. John's Regional Medical Center  
Joplin, MO

Date Reported: April 12, 1991

NRC Region III was notified by the licensee that a number of cobalt-60 teletherapy misadministrations had occurred between September 1989 and March 1991. The misadministrations (defined as therapeutic doses varying more than 10 percent from prescribed doses) were discovered during a review of past treatment data in March and April 1991. On April 25, the licensee formally reported that 12 misadministrations had occurred.

Of the 12, three patients received doses 10 to 18 percent higher than the prescribed doses, and nine patients received doses from 10 to 27 percent below the prescribed doses. All misadministrations resulted from erroneous information in the treatment-planning computer program. All treatments, with one exception (an arc treatment) involved the use of wedges.

The treatment discrepancies were first discovered in March 1991, when a therapy technologist, preparing for an upcoming board certification test, pulled the files of previously treated patients to practice hand-calculated dosimetry. The technologist later informed licensee management that her results did not match the wedge-related treatment doses indicated in the patient files. On March 22, the Radiation Safety Officer (RSO) was asked to investigate the apparently conflicting results. The RSO developed a list of patients who received wedge-related treatments since the inception of that type of treatment in August 1989. On March 25, the RSO presented the list to the Radiation Oncology staff, who began hand calculations of all patient treatments. Reruns of the original computer calculations also were initiated.

By March 29, the reworks supported the technologist's original finding that actual administered doses had deviated significantly from prescribed doses. All of the patients' referring physicians were subsequently notified of the dose differentials, except for one physician who had left the area (the patient was notified directly, here). The licensee stated that no adverse effects have been observed, to date.

In 11 of the 12 misadministrations, the licensee failed to calculate a computer program's "wedge normalization factor," in making initial dose calculations. The wedge normalization factor is described in the manufacturer's computer program instruction manual. Instead of using this factor, the licensee used different measured wedge factors that were not compatible with the computer program. The other misadministration resulted from the licensee's failure to correct the computer program, as directed by the manufacturer's release notes.

On April 12, 1991, the licensee requested an amendment to its NRC license, requiring independent verification of cobalt-60 teletherapy treatment plans, to prevent further misadministrations. In addition, the licensee has implemented an internal procedure that also requires independent verification of treatment plans before treatment.

On April 18, 1991, NRC Region III conducted a special safety inspection at the Medical Center, in response to the cobalt-60 misadministrations. On May 10, 1991, Region III issued a Severity Level IV (just above least severe) violation, citing the licensee for failing to notify NRC within 24 hours of discovery of the initial misadministration.

On April 15, 1991, Region III approved Amendment 18 of the Medical Center's teletherapy license, which requires the licensee to perform dual calculations for all cobalt-60 therapies before initiation of treatment. The licensee also must maintain records of the dual verification.

### Event 3: Radiation Exposures of Members of the Public from a Lost Radioactive Source

Date Notified: September 5, 1991

Licensee: Western Atlas International  
Yukon, OK

On September 5, 1991, Western Atlas International notified the State of Texas that a 2-curie cesium-137 sealed well-logging source had been lost that morning from the licensee's vehicle enroute from the licensee's Yukon, Oklahoma, facility to its Houston, Texas, facility.

The licensee initiated a search. Meanwhile, at approximately 5:30 p.m. that day, a citizen spotted the shipping container lying on a gravel shoulder near the Interstate 45 Exit 118 road, and notified the Huntsville Police Department.

A police officer was dispatched to the scene, found the radioactive source 3 to 4 feet from its shipping container, picked it up, and is believed to have held it for about 5 seconds before dropping it near the container. The area was closed to the public until a member of the city's emergency management services retrieved the source, using 2 knives as handling tools; at approximately 6:15 p.m., the source was placed back into the shipping container, which was missing its shield plug. Licensee personnel placed the source in a complete shipping container at approximately 7:30 p.m.

The large pin attached to the bar securing the shipping container shield plug was missing. This allowed the safety bar to slide out of position, and the plug and source to come out of the shipping container.

In addition, the truck bed from which the source was lost was flat, with only a canvas cover held in place with four elastic straps. During transportation, several shipping containers fastened on the truck bed by locks attached to the containers and to the links of a slack steel chain (which was attached to truck structures) moved somewhat, on the truck bed. The shipping containers accelerated their movement when the vehicle turned corners,



breaking a lock and allowing the shipping container to fall off the back of the truck.

The police officer who held the source received an estimated exposure of approximately 5 rem to his fingers. The individual who retrieved the source received an estimated exposure of approximately 360 millirem to his fingers.

The event was attributed to human error. Western Atlas International personnel did not follow the licensee's procedures or management instructions in correcting shipping container deficiencies and in properly securing the shipping containers to the transporting vehicle.

On September 6, 1991, the day after the incident Western Atlas International issued a memorandum to all its North American facilities, on corrective measures, effective immediately. Shortly thereafter, the licensee removed the personnel involved in the incident from licensed activities.

#### Event 4: Medical Diagnostic Misadministration

Date Reported: September 9, 1991

Licensee: St. John's Mercy Medical Center  
St. Louis, MO

A bone scan diagnostic study was scheduled for September 9, 1991, for a 15-month-old male child with possible osteomyelitis (bone inflammation) of the ankle. Because of an error in the hospital's radiopharmacy, the child was given an adult dose of technetium-99m MDP, the radioactive pharmaceutical used for a bone scan. The normal dose for a child of his weight would be 1.91 millicuries. The standard adult dosage used for the diagnostic study was about 21.96 millicuries, more than 10 times the intended dosage to the child.

The licensee uses a computer system to determine the appropriate amounts of the radiopharmaceutical to use in the bone scan. For adult patients, there are standardized dosages; for patients under 18 years old, the dosages are calculated on the basis of body weight. The pediatric patients are identified on the licensee's treatment list with an asterisk, accompanied by a handwritten notation of the patient's body weight.

The radiopharmacist who prepared the technetium-99m MDP for the bone scan failed to note the asterisk and handwritten body weight on the computer printout of scheduled diagnostic studies. As a result, he prepared the standard adult dosage.

The nuclear medicine technician failed to detect the error before administering the radiopharmaceutical to the patient. The technician checked the patient's name on the dose ticket accompanying the syringe, but did not verify the radiopharmaceutical and dosage, as required by hospital policy. After the administration, the technician

noted that the volume of the technetium-99m MDP was greater than expected, rechecked the dose ticket, and discovered the error.

Because the error would not negate the results of the diagnostic study, the bone scan was completed. Although the amount of radiation the child received was greater than intended, the licensee determined the increased risk of biologic effects was not significant. The calculated radiation dose for the study was about 4.4 rads to the bone and 1.3 rads to the total body. This compares to about 0.38 rads to the bone and 0.11 rads to the whole body, had the correct dosage been administered.

The cause is attributed to human error on the part of the radiopharmacist and the nuclear medicine technician. The hospital has counseled the two employees involved in the error. Hospital management met with the nuclear medicine department staff on September 17, 1991, to review the impact of the errors in this incident, to stress the importance of checking one's own work as well as the work of others, and to point out the need to follow department policies.

#### Event 5: Overexposure of a Non-Radiation Worker

Date Reported: May 1991

Licensee: H&G Inspection Co., Inc., Houston, TX  
(Agreement State Licensee)

During radiography operations by H&G Inspection Company, Incorporated, Houston, Texas, on a barge near Port Arthur, Texas, an unmonitored, non-radiation worker employed by the Exxon Corporation received a whole-body exposure, estimated to be between 1.8 and 3.9 rem, from a radioactive source that was not properly shielded. This exceeds the abnormal occurrence reporting threshold of 0.5 rem in one calendar year for a member of the general public. In addition, a radiographer received a whole-body exposure of about 7.7 rem. [This exceeds the license limit for whole-body exposure to a radiation worker in one calendar quarter; however, it is below the abnormal-occurrence reporting threshold of 25 rem whole body.] There were three root causes for the event. The first cause was a camera locking with the source in the unshielded position. The second cause was the failure of the radiographer to perform an adequate survey to determine whether the source was in the shielded position. The third cause was inadequate procedures regarding unmonitored personnel entering a restricted area.

The radiographers and the Exxon employee were notified of their exposure. All licensee employees were notified of the incident by memo. The incident was discussed during the next safety meeting. New procedures were developed pertaining to unmonitored personnel entering restricted areas. The requirements for performing a proper survey were reemphasized to ensure that a source has been properly retracted into its shielded position. When the camera is moved to a different job site, the guide tube will

be disconnected and the safety plug inserted. Anyone not following the new procedure will be fined \$100.

The licensee was cited by the Texas agency for allowing an unmonitored individual to receive an exposure greater than 2 millirem in an hour, for the exposures of the two radiographers, and for the failure to perform adequate surveys to determine whether the radiation source was secured.

#### Event 6: Extremity Overexposure of a Radiation Worker

Date Reported: July 10, 1990

Licensee: Rosemont, Inc., Mt. Prospect, IL  
(Agreement State Licensee)

While extracting a 10-curie cesium-137 source from its housing, an employee (radiation worker) received an overexposure to his left hand. The actual exposure is not precisely known, but was likely between 200 and 714 rem. Because the higher value, which was indicated by the worker's dosimetry, could not be disproved, 714 rem to the left hand was entered into the worker's radiation records. The event was investigated by the Illinois Department of Nuclear Safety (referred to as the State Agency).

On July 10, 1990, the worker was removing the source from a Model 7064P source housing. Operating on this particular source holder was a special case requiring direct observation and timing of operations by the worker's supervisor.

Extraction of the source from the source holder began. After about 25 percent of the crimp was peeled back, the cylinder in which the source was contained separated from the base of the source holder. After uncrimping the broken source holder, the worker tried to extract the source, and was successful on his second attempt. The source was then placed in a lead pig. The total time reported by the worker's supervisor for the entire procedure was 4 minutes and 45 seconds.

Because the source manipulation was unusual, the supervisor suggested that the worker's ring thermoluminescent dosimeter (TLD) be processed. On July 12, 1990, the results indicated an exposure of 714 rem (instead of the usual 3 to 4 rem) to the left hand.

The worker was examined by a physician on the evening of July 12, and found normal. The worker showed no visible signs of acute radiation overexposure to his left hand. He stated that there was no discomfort, reddening, swelling or other ill effects. On July 20, an oncologist/nematologist informed the worker that all tests were normal and that he could find no sign of damage. Based on these findings, the doctor believed that the worker had not been exposed to the high level of radiation reported.

The worker's explanation of this event is an error in reading the TLD or an imperfection in the TLD material itself. The worker stated that he knew of no enemies at the plant who would sabotage his dosimetry. He also stated that access to his dosimetry while not being worn is rather restricted.

The State Agency inspectors witnessed a reenactment of the source-extraction procedure, using a blank stainless steel source holder, and it is unlikely that the worker received an exposure of 714 rem. However, the Agency concluded that an extremity overexposure did occur, estimated to be approximately 200 to 300 rem.

The following recommendations were offered during the interview:

1. The licensee should contact the processor and have it check the TLD chip and reading system for proper response (quality assurance).
2. The licensee should seriously consider engineering changes or changes in procedure that would increase the distance between the source and the source remover's hand. In the absence of this change, the licensee should consider discontinuing the practice of reusing high-activity sources, because of the potential for a radiation overexposure of this kind.

The causes are attributed to inadequate procedures and supervision during operations involving a high-activity source. Greater use of remote-handling equipment could considerably reduce the potential for overexposure.

The licensee proposed the following corrective actions:

1. Effective immediately, no source capsule larger than 2 curies will be uncrimped from its holder.
2. Effective immediately, no source capsule larger than 0.5 curie will be uncrimped from its holder without direct supervision of the operation.
3. Beginning September 17, 1990, as a precaution against tampering, all source loaders' dosimeters will be kept under lock and key, when not in use.

On July 31, 1990, the State Agency issued a notice of violation for the overexposure. The license was amended to include the licensee's proposed corrective actions, and the letter transmitting the amendment included a strong suggestion that remote-handling equipment be considered more often in the interest of keeping exposures as low as reasonably attainable.

#### Event 7: Overexposure of a Radiographer

Date Reported: November 1990

Licensee: Big State X-Ray, Eastland, TX  
(Agreement State Licensee)

During radiography operations at Pride Refinery in Abilene, Texas, a radiographer received an estimated exposure of 35 rcm to his right thigh, from a radioactive source not locked in its shielded position.

The primary cause of this incident was a failure of the radiographer to properly lock a source in a camera and remove a key before moving a camera. The radiographer also failed to determine whether his survey meter was operating correctly after it became wet in the rain.

The licensee was cited by the State Agency for the overexposure and failure to properly lock and remove a key from a radiography camera before relocating it.

#### INFORMATION NOTICES PUBLISHED AUGUST 16, 1991-NOVEMBER 12, 1991

- A. Emergency Access to Low-Level Radioactive Waste Disposal Facilities--IN No. 91-65, dated October 16, 1991  
Technical Contact: Richard H. Turtill, 301-504-3447

This notice informs licensees who generate or may generate low-level waste (LLW) of the strict requirements governing implementation of the emergency access provision of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA), Congressional concern that a serious and immediate threat to the public health and safety could result from denial of access to a LLW disposal facility led to inclusion of the emergency access provision, which permits a generator of LLW or any Governor to request that NRC grant access to a disposal facility. NRC's emergency access rule (10 CFR Part 62) and Commission policy follow Congressional intent in discouraging use of emergency access as a means for disposal for any circumstance other than an urgent situation that requires disposal to protect public health and safety. Applications must provide information on the need for disposal; the material to be disposed of; the health and safety consequences of not granting emergency access; and alternatives to emergency access, including onsite storage, voluntary agreement for access to a disposal facility, purchasing disposal capacity, and ceasing generation of LLW. NRC can grant access only if all alternatives prove unreasonable.

- B. (1) Erroneous Data in "Nuclear Safety Guide, TID-7016, Revision 2," (NUREG/CR-0095, ORNL/NUREG/CSD-6 (1978)) and (2) "Thermal Scattering Data Limitation in the Cross-Section Sets Provided with the KENO and SCALE Codes"--IN No. 91-66, dated October 18, 1991  
Technical Contact:  
Charles H. Robinson, 301-504-2576

This notice alerts licensees to errors in a common reference for nuclear criticality calculations and to potential problems resulting from limitations in a common cross-section library used in support of criticality safety.

(1) Table 2.8 of the guide referred to in (1) above contains errors in the calculated subcritical limits for mixtures of U(93.5) metal, water, and graphite. The values in the table were intended to indicate limits corresponding to a multiplication factor of 0.95. However, after the discovery of errors by two independent groups, calculations performed at Oak Ridge National Laboratory (ORNL) suggested that limits presented in the table correspond to multiplication factors as high as 1.09. ORNL has generated a correction table that users may obtain. (2) ORNL was informed of a discrepancy between CASMO-3 and NITAWL-KENO-V.a. calculations involving fuel storage at elevated temperatures. Larger water gaps enhanced the temperature effects.

Criticality safety evaluations based on the incorrect data in the Nuclear Safety Guide, TID-7016, or on calculations with inappropriate hydrogen scattering matrices, may be significantly nonconservative. User review of those evaluations for continuing operations would ensure that adequate safety margins are retained.

#### BULLETIN PUBLISHED

Reporting Loss of Criticality Safety Controls--NRC Bulletin 91-01, dated October 18, 1991  
Technical Contacts:

George H. Bidinger, 301-504-2683  
Robert E. Wilson, 301-504-2126  
A. Thomas Clark, 301-504-3424

This bulletin requests that all fuel cycle and uranium fuel research and development licensees inform the Commission of their criteria and procedures that ensure the prompt evaluation and reporting, to licensee management, of the degradation of any controlled parameters used to prevent nuclear criticality and that ensure the immediate reporting, to the Commission, of any significant degradation of such controls, as required by 10 CFR 20.403(a). Licensees must respond in writing.

As the result of occurrences involving loss of criticality controls at licensed activities, one of which is described, the Commission is concerned that licensees may pay insufficient attention to the need for internal reporting and prompt evaluation of failures of controlled parameters related to criticality safety, and that licensees may not have adequate procedures for reporting these matters to the Commission.

#### RADIOACTIVE FENCE PRODUCTS IMPORTED FROM INDIA

On August 9, 1991, the State of Washington notified the U.S. Nuclear Regulatory Commission (NRC) that radioactive material had been detected during a routine survey of a truck leaving the Department of Energy's (DOE's) Hanford Reservation facility. The DOE staff found two chain-link-fence tension bars contaminated with

cobalt-60. Radiation control programs in the States of Washington and Oregon traced the material to a wholesale fence distributor in Portland, Oregon, where additional contaminated fence products were found.

Within several days, NRC, with several States' help, assessed the extent of the contamination throughout the United States. Two U.S. importers had brought in the contaminated fence products from India. They had purchased material from two separate Indian steel facilities, Kata Steel Rolling Works, in Calcutta, India, and Mangal Steel Enterprises, Ltd., in Howrah, India.

Based on the initial survey and laboratory analysis of contaminated fence products, NRC concluded that no action was necessary for bars already installed in fences or in the possession of retail companies, due to the estimated low risk and wide distribution of the fence products. In addition, it was concluded that any contaminated bars in the possession of wholesale distributors should be returned to India or transferred to a low-level waste site, for disposal.

Analysis of data from the importers, distributors, and the States indicates that contaminated fence products were identified at 64 of the initial 145 sites that were identified as receiving material from the two importers. Additional evaluation of these survey results indicated that less than 5 percent of the products at these locations were contaminated, and that radiation levels for the majority of contaminated fence products ranged from 30 to 200 microrentgens/hour, at contact.

NRC informed the Government of India of the contamination. India has initiated its own investigation into the cause of the incident. NRC is continuing to communicate with the Indian Government and has received two preliminary reports of its investigation.

The Office of Nuclear Material Safety and Safeguards continues to analyze the survey information on existing inventories and incoming shipments. To prevent further import of contaminated products, NRC has requested that both the importers and suppliers involved ensure that all incoming shipments are surveyed before export from India. In addition, transportation of the contaminated fence products within the U.S. is being coordinated with the U.S. Department of Transportation. NRC remains in frequent contact with the importers and distributors as they arrange proper disposal, probably by return of the contaminated material to India.

#### SIGNIFICANT ENFORCEMENT ACTIONS AGAINST MATERIALS LICENSEES

One way to avoid regulatory problems is to be aware of enforcement problems others have faced. Thus, we have included here a discussion of some representative enforcement actions against materials licensees. These

enforcement actions include civil penalties, orders of various types, and notices of violations.

#### A. Civil Penalties and Orders

##### 1. American Fibrit, Inc., Battle Creek, Michigan Supplement VI, EA 91-090

A Notice of Violation and Proposed Imposition of Civil Penalty was issued August 2, 1991, to emphasize the importance of effectively managing the licensee's radiation safety program, to ensure the health and safety of the workers and the public. The action was based on violations involving the failure to have an individual serve as radiation protection officer (RPO), improper use of licensed material, failure to test sealed sources, and failure to maintain records of the physical inventory of licensed sealed sources. The base civil penalty was escalated 200 percent because NRC identified the violations, prior notice that identified the lack of a qualified RPO, and the length of time the licensee was without a qualified RPO.

##### 2. Cleveland Clinic Foundation, Cleveland, Ohio Supplements IV and VI, EA 91-084

A Notice of Violation and Proposed Imposition of Civil Penalty was issued July 29, 1991, to emphasize the need for effective leadership, management, and oversight of licensed activities. The action was based on 14 violations in the licensee's radiation safety program. The base civil penalty was escalated 20 percent because NRC identified all but one of the violations, the licensee did not correct all the immediate violations, and the licensee was provided prior notice of a similar event in a previous enforcement action.

##### 3. Cotton Houston Services, Inc., Huffman, Texas Supplement VI, EA 91-087

A Notice of Violation and Proposed Imposition of Civil Penalty was issued July 31, 1991, to emphasize the importance of ensuring that radiographers are equipped with all devices designed to ensure their safety, and the importance of taking prompt action to avoid noncompliance, when given notice of the potential for such noncompliance. The action was based on the failure to provide alarm rate dosimeters.

##### 4. Industrial NDT Company, Inc., North Charleston, South Carolina Supplement IV, EA 91-061.

A Notice of Violation and Proposed Imposition of Civil Penalty was issued June 28, 1991, to emphasize the importance of maintaining proper control of licensed material and ensuring that only authorized individuals have access to such material. The action was based on a violation involving the failure to secure licensed material from unauthorized removal and a failure to provide constant surveillance and control of licensed material. A licensee radiographer, unaware that a radiographic exposure device

had been placed on the tailgate of the vehicle he was to drive to a jobsite, left the facility with the device sitting on the tailgate. The device fell off about a mile from the facility and was found by a private citizen.

5. Materials Inspection and Testing, Incorporated,  
Fort Wayne, Indiana  
Supplements IV, V and VI, EA 91-078

A Notice of Violation and Proposed Imposition of Civil Penalty was issued July 19, 1991, to emphasize the importance of complying with license and regulatory requirements and ensuring effective management oversight of licensed programs. The action was based on numerous violations that represented a significant lack of management control of licensed activities. The base civil penalty was escalated 250 percent because of NRC identification of the violations; the licensee being provided ample prior notice of similar events, during previous inspections and via NRC information notices; the duration of the violations, including the 5-year duration of the most significant violation; and the lack of radiation safety training for two gauge users.

6. St. Luke's Midland Regional Medical Center,  
Aberdeen, South Dakota  
Supplements IV and VI, EA 91-109

A Notice of Violation and Proposed Imposition of Civil Penalty was issued August 28, 1991, to emphasize the importance of conducting the licensee's nuclear medicine program in accordance with all radiation safety requirements and the importance of developing an effective management system to ensure that such requirements are met. The action was based on 13 violations of NRC requirements in the licensee's nuclear medicine program. The base civil penalty was increased 50 percent, because NRC discovered the violation.

7. Stone Container Corporation, Coshocton, Ohio  
Supplements IV and VI, EA 91-112

A Notice of Violation and Proposed Imposition of Civil Penalty was issued September 16, 1991, to emphasize the need to effectively manage the licensee's radiation safety program and ensure the health and safety of workers and the public. The action was based on six violations, including the loss of a 25 milligram cesium-137 sealed source encased in a density/level gauge, that, in the aggregate, represented a significant lack of management control of licensed activities. The base civil penalty was escalated 100 percent because NRC identified the licensee's weak management control of licensed activities and the licensee had received prior notice of similar events.

8. Tumbleweed X-Ray Company,  
Greenwood, Arkansas  
EA 91-102

An Order Suspending General License (Effective Immediately) and Termination of NRC License was issued September 6, 1991. The action was based on a history of failures to meet numerous regulatory requirements and commitments as to licensing, audits, and corrective actions; the intentional failure of an assistant radiographer to conduct a survey of an exposure device, which resulted in injury to him; and a radiographer's intentionally allowing the assistant to perform unsupervised radiography. The licensee requested termination of its NRC license. NRC suspended the general license to prohibit conduct of radiography in NRC States under reciprocity.

9. Western Stress, Inc., Houston, Texas  
Supplements IV and VII, EA 90-213

A Notice of Violation and Proposed Imposition of Civil Penalty was issued May 6, 1991, to emphasize the importance of strict attention to radiation safety requirements in the conduct of industrial radiography and the importance of providing accurate information to NRC personnel. The action was based on an incident where the radiographer intentionally removed his dosimetry to avoid recording a high radiation dose, and either did not carry or did not use a survey meter, when approaching the source, which had fallen from its mounted position on a tank.

- B. Severity Level III Violation, No Civil Penalty

1. Cintichem, Inc., Tuxedo, New York  
Supplement IV, EA 91-079

A Notice of Violation was issued July 3, 1991, based on violations involving a contamination incident that occurred during a radioactive waste-handling operation. A civil penalty was not proposed because the licensee identified the violations and promptly reported them to NRC, and the licensee's corrective actions, which include measures to prevent recurrence of all of the violations, were considered prompt and extensive.

2. Department of the Navy, Portsmouth Naval Hospital, Portsmouth, Virginia  
Supplement VI, EA 91-094

A Notice of Violation was issued July 26, 1991, based on the unauthorized administration of licensed radioactive material to a member of the facility nuclear medicine staff. A civil penalty was not proposed because of the licensee's extensive corrective action, which included retraining of the nuclear medicine staff, notification of all Department of the Navy nuclear medicine activities of the event, revision of procedures, and appropriate counseling for those individuals directly involved.

3. Photon Field Inspection, Inc. Saginaw, Michigan  
Supplements VI and VII, EA 89-243

A Notice of Violation and Termination of License was issued September 23, 1991, based on the licensee's failures to: comply with employee protection regulations, provide accurate and complete information, and maintain radiographic utilization logs. The licensee requested termination of its license.

4. University of Cincinnati, Cincinnati, Ohio  
Supplement IV, EA 91-097

A Notice of Violation was issued August 8, 1991, based on the loss of licensed material. A civil penalty was not proposed because of the licensee's prompt identification, reporting, and extensive corrective actions.

#### NEW NUCLEAR REGULATORY COMMISSION (NRC) PHONE NUMBERS

NRC has changed the phone numbers at its Headquarters, in Rockville, Md., One White Flint North. This includes the phone numbers within the Office of Nuclear

Material Safety and Safeguards (NMSS), but not the phone numbers within some of the other NRC offices such as the Office of Nuclear Regulatory Research. There is no change to numbers for the five regional offices.

As part of a switch from the previous system to the new Washington Interagency Telecommunications System (WITS), local numbers (in the 301 area code) beginning with 492-0, 492-1, and 492-3 will change to 504 prefixes for commercial calls. For 492-1 and 492-3 numbers, the suffix will remain the same as it was for the 492-XXXX number. The exception is numbers whose suffixes began with "0"; in most cases, a "2" will replace the "0." Calls to the old 492-XXXX number will be answered for six months by an intercept recording that will give the caller the new 504-XXXX number.

For calls on the Federal Telecommunications System (FTS), the new numbers will be 964-XXXX, where the XXXX suffix is the same as the suffix for the WITS 504-XXXX number.

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NUCLEAR REGULATORY COMMISSION  
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