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7TH DISTRICT, MASSACHUSETTS

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RESOURCES COMMITTEE

**Congress of the United States**  
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August 19, 2004

The Honorable Nils J. Diaz  
Chairman  
Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD, 20852

Dear Chairman Diaz:

I am writing to request additional information regarding the Commission's efforts to secure materials that could be used to make dirty bombs. I continue to be concerned that the Commission is not doing enough to ensure that these materials do not fall into the wrong hands. I am also concerned that sources containing enough radiation to kill those exposed to them within minutes of exposure are readily available overseas to anyone who wants them.

As you know, Al Qaeda is reportedly seeking radioactive materials with which to construct a dirty bomb or homemade nuclear weapon in North America, and the most recent elevation of the terror threat level to "Orange" reportedly was in part motivated by fears of a terrorist plot to detonate a dirty bomb in an American city. Over the past several years, I have written several letters to the Commission, the Department of Energy (DOE), the Department of Homeland Security and U.S. Customs regarding lax security associated with these materials (see <http://www.house.gov/markey/dirtybombs.htm> for all such correspondence).

I am writing you today in part because I have particular questions regarding the availability of these materials overseas. I recently learned that a vendor was listing a 1720 Curie cobalt source, available for **free** to anyone willing to pay for its shipping (see Attachment 1 or <http://www.dotmed.com/listing/65123>). 1720 Curies is more than enough radiation to kill someone within minutes of exposure, and I have learned that it is likely that the source is in a semi-dispersible form of metal pellets that could be particularly damaging if used in a dirty bomb. When my staff contacted the vendor to determine whether the offer was genuine, they learned that the vendor is located in Beirut, Lebanon, and that the source is available to anyone who can arrange for it to be dismantled and shipped (see Attachment 2 for email correspondence). My staff was at no point informed of any requirement to obtain an NRC license in order to have the source shipped to Washington, DC. Purchasers in other nations may be able to import these sources with little or no

regulatory scrutiny, and then attempt to retransfer the nuclear materials to the U.S.

An additional company providing radioactive materials for export from the U.S. to customers overseas is even more disturbing. The North American Technical Services, Inc. (see <http://www.nats-usa.com/>) has offices in the United Arab Emirates, Saudi Arabia, Singapore, Tunisia, Malaysia, and Indonesia, and lists numerous customers in the Middle East. Even if all the radioactive shipments made by this company go to legitimate customers, it is unlikely that the security levels associated with the devices in countries such as Tunisia, Malaysia, Jordan and Saudi Arabia can provide a reasonable assurance that U.S. technology that could be used to make a dirty bomb can be kept out of the hands of prospective terrorists. Recent press reports have also indicated that the U.S. Immigration and Customs Enforcement has raided the home that belongs to the owner of the company, that he has been placed on a "no-fly list," that he has made financial contributions to charities that are suspected of supporting terrorist groups, and that he sent email to an individual recently arrested in the United Kingdom for raising funds for terrorist groups.

As you may know, the Department of Homeland Security has yet to complete the installation of radiation portal monitors at U.S. points of entry, and even when the installation is complete, it is probable that only a small fraction of materials entering the US will be screened. Further, even if the shipments are clearly and properly labeled as to their contents, checking of consignee addresses against lists of approved licensees lists to verify the consignees' authorizations to receive the sources is not conducted. Clearly, the possibility that someone seeking to construct and detonate a dirty bomb might find easy access to these materials overseas and then ship the materials to the US is a grave concern.

I also have concerns regarding the security of these materials domestically. As you may recall, I wrote you on April 9, 2004 concerning a memo obtained by my office indicating that of 120 "Gammator" sources containing radioactive cesium that were distributed to schools, hospitals and other institutions under the "Atoms for Peace" program, 11 sources are unwanted by their current owners (2 in IL, 1 in NC, 1 in NJ, 1 in NY, 1 in OR, 1 in PA, 3 in TX, 1 in WI) and 7 sources could not be located, 2 in MD, 1 in NV, and 4 in NY of which 1 may have been transferred to a known address in Ft. Lee, NJ. On May 28, 2004, you responded to my letter. I continue to have questions regarding the whereabouts of the missing Gammator sources since it is unclear from your response what the Commission has recently done to locate them. Moreover, while I am pleased that the Commission recently approved the publication in the Federal Register of a proposed rule to amend 10 CFR Part 110, 'Export and Import of Nuclear Equipment and Material,' I am concerned that there remain regulatory loopholes that could be exploited by terrorists seeking to attack the

U.S. with a dirty bomb. Consequently, I ask for your prompt assistance in responding to the following questions:

### **Questions on Obtaining or Exporting Radioactive Sources Illegally**

- 1) Has the Commission received other notifications of the availability of unwanted radioactive sources to interested parties overseas such as the one obtained by my office? If so, please list all such notifications, and the actions taken by the NRC to address them. If it is not the NRC's responsibility to address these matters, whose is it?
  
- 2) The following websites and companies, in addition to the one that advertised the free cobalt source, also advertise used radioactive devices for trade or sale:  
<http://www.logwell.com/tech/ssexchange/index.html>,  
<http://www.frontlinedesignsolutions.co.uk/source/>  
[www.afabtechnology.com/uscob60sys.html](http://www.afabtechnology.com/uscob60sys.html)  
<http://www.nats-usa.com/>
  - a) Does the NRC monitor and/or educate the operators of these websites and companies (and/or other such sites if they exist) to ensure that sources are not provided to anyone who doesn't have the appropriate license? If so, please describe all such activities. If not, why not?
  - b) Is the NRC aware of any instance in which a source offered for sale or trade on one of these (or other) websites was provided to someone who did not have the appropriate license? If so, please fully describe all such instances.
  - c) Has the NRC contacted the regulatory authorities in other countries or the International Atomic Energy Agency when it learns of the existence of such sources to urge that action be taken to prevent them from being readily transferred around the world? If so, what has the NRC done with respect to the aforementioned source? Are there any other instances in which the NRC has taken similar action? If the NRC has not taken action to contact foreign or international regulators about such matters, why not?
  - d) What export requirements exist for such devices, particularly those intended to be exported to countries such as Saudi Arabia?
  - e) Once the proposed rule on the export and import of radioactive sources becomes final, how will NRC ensure that companies in the business of exporting sources comply with the requirements? Please describe the plans the Commission has to conduct random audits of companies who export these materials. If there are no such plans, why not?
  - f) What will the penalties for failing to comply with the rule, once it becomes final, be?
  - g) Will the rule also apply to licensees in Agreement States?



- b) As indicated earlier, the North American Technical Services, Inc. (see <http://www.nats-usa.com/>), which exports radioactive devices, has numerous offices and customers in the Middle East. Has the NRC ever audited this company to ensure it is following regulations? If not, why not, and was the NRC even aware of this company's existence? Is the Commission at all concerned that sources are being exported to countries that may not have the security regulations in place that guarantee that they can't be stolen by terrorists? If not, why not?
- 5) It is my understanding that Russia is the largest exporter of bulk cesium chloride. What is the NRC doing to ensure that Russia and other major exporters of radioactive isotopes are improving both their domestic controls and export controls over these materials? Please list and fully describe all such activities.

#### **Questions on the Missing Gammator Sources**

- 1) Your May 28 response states that "NRC remains attentive for any new information on the status of the remaining sources."
- a) What precisely does this mean? Have NRC personnel conducted site visits to the licensees of the missing sources to further investigate? If not, why not?
  - b) If so, please describe each visit, including the date of the visit, the steps taken during the visit to attempt to determine the whereabouts of the source, and any follow-up steps taken after the visit.
  - c) Have NRC personnel taken any other tangible steps to determine the whereabouts of these sources? If so, please describe all such measures, including the date on which the step was taken.
  - d) Has the manufacturer been contacted to determine if any of these sources have been returned?
- 2) Your response stated that the Department of Energy is currently identifying funds to support recovery of the Gammator sources.
- a) What is the status of these efforts?
  - b) How much money will be required to recover all the unwanted Gammator sources?
  - c) Have these funds been obtained? If not, what is being done to identify alternate funding? If so, when have/will the sources be recovered?
  - d) What is the status of funding for FY 05 and FY 06? What are you doing to ensure that these funds are available?
- 3) Your response states that NRC believes that all the unwanted Gammator sources are being properly controlled by the licensees. Has the NRC visited these sites in order to verify this? If so, when? If not, then how do you know?

- 4) Your response indicates that in 1996, a service and manufacturing licensee offered to recover the unwanted Gammator sources at a reduced cost, but that none of the licensees accepted the offer. The September 11 2001 attacks may have heightened licensees' awareness of the security risks associated with these materials, and indeed, your response states that "it may be possible to negotiate a similar reduced cost option if enough licensees indicate a willingness to take advantage of such an option." What has the NRC done to explore the licensees' willingness to pay a reduced cost for disposal of these sources and to facilitate such an option to be offered and utilized?
- 5) The Conference of Radiation Control Program Directors, Inc. has received funding from EPA and DOE to start up an orphan source recovery program. Since startup, this program has been dependent upon the NRC for operational funding. What NRC funding level is planned for FY 05 and 06? If the funding has decreased, please explain why.

#### **Questions on Other Security Matters Related to Dirty Bombs**

- 1) Your response states that NRC has completed an interim inventory of high-risk radioactive sources possessed by NRC or Agreement State licensees.
  - a) Please provide my office with a copy of this inventory.
  - b) Please describe the process by which this inventory was developed.
  - c) Have NRC personnel reviewed all licenses for the high-risk radioactive sources identified and checked to ensure that the licensee still possessed and was using the source? If so, please provide a table containing the following: i) the identity (i.e., which radionuclide it is) and licensee of each missing or unwanted source, ii) its activity level, iii) for each unwanted source, the steps NRC is taking to facilitate its disposition, and iv) for missing sources, the location it was last known to be at, and the steps NRC has taken to determine its location. If not, why not?
- 2) Your response also states that NRC and other agencies are developing a National Source Tracking System that will provide cradle-to-grave tracking of all high-risk sources, and that NRC staff planned to send a proposed rule to the Commission by the end of June.
  - a) Please describe the tracking system and how sources will be tracked.
  - b) Do you still anticipate that requirements for the tracking system will be promulgated via a public rulemaking? If not, why not? If so, please provide a timeline for all steps of this process.
  - c) What enforcement mechanisms will exist to ensure that licensees comply with the requirements of the tracking system?
  - d) Will NRC perform regular audits to ensure that the licensees of the sources are storing and accounting for them properly?
  - e) When will this program be fully operational?

- 3) My understanding is that the Department of Energy recently performed a review of the Material Control and Accounting program at the Commission. Please provide copies of all materials associated with that program review, including all recommendations, reports (both draft and final), memoranda and correspondence.
- 4) Your response states that "security enhancements for other types of licensees possessing high-risk radioactive materials (category 2 and higher quantities of radionuclides identified in the IAEA Code of Conduct, Table 1) are under consideration..."
  - a) Please list a timeline for these activities.
  - b) When will these activities be complete?
  - c) Will large food and medical sterilization facilities that contain millions of Curies of radioactive sources be required to i) harden the structures and buffer zones surrounding the facilities to make them less vulnerable to attacks, including truck bomb attacks, ii) be required to employ security guard force personnel, and iii) be required to ensure that all personnel with access to the radioactive source material undergo criminal and security background checks?
- 5) Your response states that "the security of the devices is checked during safety inspections." How often are such inspections performed for high-risk sources?
- 6) The NRC implements the regulations associated with materials that could be used to make dirty bombs in only some States. In others, known as Agreement States, the State Governments are charged with implementing NRC regulations.
  - a) How does NRC ensure that the Agreement States are implementing and overseeing NRC regulations appropriately and uniformly?
  - b) If an Agreement State is found to be implementing these regulations inappropriately or ineffectively, what can the Commission do to compel the State to modify its activities?
  - c) Has this process changed since September 11? If so, please elaborate.
  - d) If someone were to file a Freedom of Information Act (FOIA) request with the Commission to obtain a list of all licensed radioactive sources, the name and address of the licensees, and the locations of each source, would the Commission approve such a request? Why or why not?
  - e) Are there any Agreement States who would respond to such a request differently than the Commission would? If so, please elaborate. Can the Commission *require* the Agreement States to conform to its policies on release of information that could be sensitive?

- 7) When scrap metal shipments are found to be radioactive, recipients may reject the shipments and return them to the shipper using a Department of Transportation (DOT) exemption. According to reports to the Conference of Radiation Control Program Directors (CRCPD) regarding the use of this exemption, there were six shipments of scrap metal that contained cesium-137 or cobalt-60 for the period April 1999 – through May 2002. These 6 cases do not appear to be included in your response. It is my understanding that for a number of years, the Steel Manufacturers Association (SMA) collaborated with James Yusko, a certified health physicist employed by the Commonwealth of Pennsylvania, in the collection and analysis of reports of radioactive material found in metal scrap shipments. The data was periodically shared with NRC. When Mr. Yusko left in early 2000 for a one year assignment to the IAEA in Vienna, this program was discontinued.
- a) Why was the DOT exemption data not included in the NRC list of missing sources provided in your response?
  - b) Does the NRC routinely review DOT exemption use for inclusion in its database of lost, stolen and abandoned sources? If not, why not?
  - c) Why did the NRC choose not to continue the data collection activities previously performed by the SMA?
  - d) Since NRC does not appear to be including reports of radioactive materials that turn up in scrap metal shipments in its lists of stolen or missing sources, does that mean that NRC is underreporting the severity of the problem?
- 8) As you know, it is quite expensive to dispose of radioactive sources once the licensees no longer need them. While some medical and industrial processes require the use of radioactive sources, in other cases the use of sources can be replaced by other technologies. Using non-radioactive sources would also presumably reduce the company's security costs as well as the risk that a terrorist might target the company. What is the Commission doing to ensure that licensees are made aware of potential alternatives to the use of radioactive materials? If the Commission is not doing anything, why not?

Thank you very much for your consideration of this important matter. Please provide your response no later than Friday September 10, 2004. If you have any questions or concerns, please have your staff contact Dr. Michal Freedhoff of my staff at 202-225-2836.

Sincerely,

  
Edward J. Markey



Equipment Parts Jobs Services Directory Forums

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July 20, 2004

Welcome Mich

**Equipment Listings >> Imaging >> Radiation Therapy >> Cobalt 60 >> THERATRON Listing**

**FOR SALE: THERATRON T780 COBALT 60**

Condition: Good

Upda

Free of charge. Last time the source was changed was back in 1993. Current activity= 1720 Curie

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Subject:

Cobalt 60, T780 by THERATRON

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Attachment 2

**Freedhoff, Michal**

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**From:** Khaled Zouhairy [zouhairy@aub.edu.lb]  
**Sent:** Tuesday, July 13, 2004 1:33 AM  
**To:** michalilana@earthlink.net  
**Subject:** RE: DOTmed listing, Cobalt 60, T780 by THERATRON

Mr. Michal Freedhoff

Kindly provide us with final location address so that we may get a quotation from the manufacturer, for dismantling, shipping and reinstallation of the equipment.

Regards,

-----Original Message-----

**From:** Michal Freedhoff [mailto:michalilana@earthlink.net]  
**Sent:** Tuesday, July 13, 2004 3:31 AM  
**To:** 'Khaled Zouhairy'  
**Subject:** RE: DOTmed listing, Cobalt 60, T780 by THERATRON

Do you have a sense for how much it would cost, and what other paperwork etc we might have to go through?

Thanks  
Michal Freedhoff

-----Original Message-----

**From:** Khaled Zouhairy [mailto:zouhairy@aub.edu.lb]  
**Sent:** Monday, July 12, 2004 5:20 AM  
**To:** michalilana@earthlink.net  
**Subject:** RE: DOTmed listing, Cobalt 60, T780 by THERATRON

Dear Michal Freedhoff

The machine is available at the American University of Beirut Hospital, Beirut-Lebanon. Either you arrange for the dismantling and transportation, or if you want we try to arrange that for you at your expense. If you need further information you can contact me at 9613808955.

Regards,

-----Original Message-----

**From:** michalilana@earthlink.net [mailto:michalilana@earthlink.net]  
**Sent:** Thursday, July 08, 2004 7:04 PM  
**To:** zouhairy@aub.edu.lb  
**Subject:** DOTmed listing, Cobalt 60, T780 by THERATRON

Michal Freedhoff (michalilana@earthlink.net) sent you this email

regarding a  
Listing you posted on  
<http://www.dotmed.com>. Any message from Michal Freedhoff will appear at  
the  
bottom of  
this email.

You can view this listing by visiting the following URL below.

<http://www.dotmed.com/listing/65123>

Equipment Type: Cobalt 60

Manufacturer: THERATRON

Model: T780

Condition: Good

Comments: Free of charge. Last time the source was changed was back in  
1993. Current activity= 1720 Curie

You may edit or remove this listing by logging into [www.dotmed.com](http://www.dotmed.com) and  
selecting My Listings from the My DOTmed menu.

I'm very interested in this device. How shall we proceed?

Thanks

Michal Ilana Freedhoff