UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

July 20, 2005

Docket No. 07000314 License No. SNM-296
EA-05-135

Bruce E. Peterson, General Manager
Ledoux & Company
359 Alfred Avenue
Teaneck, New Jersey 07666-5755

SUBJECT: SPECIAL INSPECTION 07000314/2005001, LEDOUX & COMPANY, TEANECK, NEW JERSEY

Dear Mr. Peterson:

This refers to the inspection conducted on April 14 - July 8, 2005, at your facility in Teaneck, New Jersey. The purpose of the inspection was to follow up on the reported loss of an analytical sample containing 3.3 grams of uranium-235. Specifically, on March 30, 2005, your staff received a package containing seven analytical samples of uranium-235. A staff member opened the package on April 1, 2005, identified six of the seven samples shipped, and performed an unsuccessful cursory search for the seventh sample. On April 12, 2005, your staff initiated a more thorough search, discovered the package had been disposed of as normal trash, and concluded the missing sample had been disposed of with the package. NRC was notified of the apparent loss on April 13, 2005 and, on May 11, 2005, you provided NRC with a written report concluding the package had been sent to a landfill and the missing sample was therefore unrecoverable. The enclosed report presents the results of this inspection.

Based on the results of this inspection, three apparent violations were identified and are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at www.nrc.gov; select **What We Do**, **Enforcement**, then **Enforcement Policy**. Specifically, 10 CFR 20.1501(a)(1) requires that each licensee make or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, concentrations or quantities of radioactive material, and the potential radiological hazards. Survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal or presence of radioactive material. Note that a survey does not require the use of a meter. As described above, on April 1, 2005, your staff failed to adequately survey a package containing uranium-235 samples and, because of this failure, one sample remained within the package. Furthermore, even though your staff member could not account for all seven samples, no action was taken to retain the package and, when this package was removed from the restricted area in the facility and placed in the facility dumpster, a controlled area, the uranium-235 sample was not secured from unauthorized removal or access as

required by 10 CFR 20.1801. Finally, when this package was disposed of to a landfill, it was not disposed of in accordance with the requirements of 10 CFR 20.2001(a) and 10 CFR 70.42(a). The circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective action were discussed with you and members of your staff at the preliminary exit meeting on April 14, 2005, and at the final exit meeting on July 8, 2005.

Before the NRC makes its enforcement decision, we are providing you an opportunity to either: (1) respond to the apparent violations addressed in this inspection report within 30 days of the date of this letter; or (2) request a predecisional enforcement conference. If a conference is held, it will be open for public observation. The NRC will also issue a press release to announce the conference. Please contact Todd Jackson at (610)337-5308 within 7 days of the date of this letter to notify the NRC of your intended response.

If you choose to provide a written response, it should be clearly marked as a "Response to Apparent Violations in Inspection Report No. 07000314/2005001; EA-05-135" and should include for each apparent violation: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance will be achieved. In presenting your corrective action, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. The guidance in the enclosed excerpt from NRC Information Notice 96-28, "SUGGESTED GUIDANCE RELATING TO DEVELOPMENT AND IMPLEMENTATION OF CORRECTIVE ACTION," may be helpful. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a predecisional enforcement conference.

In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if you choose to provide one) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Thank you for your cooperation.

Sincerely,

/RA/

George Pangburn, Director
Division of Nuclear Materials Safety

Enclosures:
1. Inspection Report
2. Excerpt from NRC Information Notice 96-28

cc:
Charles Avallone, Radiation Safety Officer
State of New Jersey

Distribution w/encl:
ADAMS (PARS)
SECY
CA
OEMAIL
OEWEB
L. Reyes, EDO
M. Virgilio, DEDMRS
M. Johnson, OE
B. Jones, OGC
L. Chandler, OGC
J. Strosnider, NMSS
C. Miller, NMSS
R. Zimmerman, NSIR
G. Tracy, NSIR
J. Peralta, NSIR
C. Miller, OEDO
G. Morell, NMSS
Enforcement Coordinators
RII, RIII, RIV
S. Figueroa, OE
M. Elwood, OGC
K. Remsberg, OGC
W. Outlaw, OCM
M. Cheok, RES
S. Gagner, OPA
H. Bell, OIG
P. Lohaus, OSTP
G. Caputo, OI
L. Tremper, OCFO
D. Screnci, PAO-RI
N. Sheehan, PAO-RI
G. Pangburn, RI
B. Thomas, RI
F. Costello, RI
J. Dwyer, RI
T. Jackson, RI
K. Farrar, RI
D. Holody, RI
J. Wray, RI
D. Corlew, RI
Region I OE Files (with concurrences)

DOCUMENT NAME: E:\Filenet\ML052010237.wpd

SISP Review Complete: (JPD)
After declaring this document "An Official Agency Record" it **will** be released to the Public.

To receive a copy of this document, indicate in the box: "**C**" = Copy w/o attach/encl "**E**" = Copy w/ attach/encl "**N**" = No copy

OFFICE	DNMS/RI	N	DNMS/RI		ORA/RI		ORA/RI	
NAME	Jdwyer jpd1		Gpangburn bet for		Dholody jrw for		Kfarrar klf	
DATE	7/13/2005		7/13/2005		7/15/2005		7/15/2005	

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

EA No.	05-135
Inspection No.	07000314/2005001
Docket No.	07000314
License No.	SNM-296
Licensee:	Ledoux & Company
Location:	359 Alfred Avenue Teaneck, NJ 07666
Inspection Dates:	April 14 - May 11, 2005
Exit Meeting:	July 8, 2005

Inspectors:

/RA by J. Schmidt Acting for/ ***7/13/05***

Todd J. Jackson, CHP — date
Senior Health Physicist

/RA/ ***7/13/05***

James Schmidt, CHP — date
Health Physicist

Approved By:

/RA/ ***7/13/05***

James P. Dwyer, Chief — date
Commercial and R&D Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Ledoux & Company
NRC Inspection Report No. 07000314/2005001

Two inspectors from the NRC Region I office conducted a special inspection of Ledoux & Company, Teaneck, New Jersey, on April 14, 2005. The inspectors were accompanied by representatives of the New Jersey Department of Environmental Protection and the New Jersey State Police. The inspection was conducted in response to the licensee's April 12 telephone report to the NRC Operations Center that 3.3 grams of uranium-235 (U-235, special nuclear material or SNM) was missing. Inspectors concluded that the licensee's processing of the received shipment was not adequate to assure the material was secured from unauthorized removal, resulting in the loss of the SNM in the sample.

As a result of the inspection, three apparent violations of NRC requirements were identified.

> 10 CFR 20.1501(a)(1) requires that each licensee shall make or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20.
>
> 10 CFR 20.1801 requires the licensee to secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.
>
> 10 CFR 20.2001 (a)(1) requires, in part, that a licensee shall dispose of licensed material only by proper transfer to an authorized recipient as provided in the regulations and 10 CFR 70.42 (a) requires that no licensee shall transfer special nuclear material except as authorized pursuant to the regulations in section 10 CFR 70.42.
>
> Contrary to the above, between April 1 and April 12, 2005, the licensee did not adequately survey items removed from the controlled area to assure that 3.3 grams of licensed special nuclear material was secure from unauthorized removal. As a consequence of this failure, the special nuclear material was disposed of as trash and was not transferred to an authorized recipient as required.

The potential public impact from this event was minimal. No radiation exposure to the public would be expected from the container holding the material and no pathway for additional exposure exists because the material was buried in a landfill.

REPORT DETAILS

I. Introduction

Ledoux & Company (the licensee) contacted the NRC Operations Center by telephone on April 13, 2005, to report that a 5.0 gram sample containing 3.3 grams of uranium-235 (U-235, special nuclear material or SNM) was missing (Event Report 41594). Documents indicated the missing SNM had been in a package received by the licensee on March 30, 2005. The licensee opened the package on April 1, 2005, and on April 13, 2005, determined that one container from within the package could not be located. NRC inspectors were dispatched to the licensee's facility on April 14, 2005, and met representatives of the State of New Jersey at the facility. New Jersey representatives were present during all aspects of the inspection on April 14, 2005.

II. Organization and Scope of the Program

a. Inspection Scope

Inspectors examined the licensee's organization responsible for handling radioactive material through review of records and procedures, interviews, and tours of facilities. Inspection activities focused on aspects of operation directly related to the handling and processing of the package which had contained the missing sample.

b. Observations and Findings

Ledoux & Company is licensed by the NRC to possess uranium-235 and typically receives samples of the material for chemical analysis. The General Manager is the senior licensee management representative responsible for overall facility operations, and the Nuclear Services Department (NSD) is responsible for activities involving licensed radioactive materials. The Manager, NSD, is also the Radiation Safety Officer (RSO) for the licensee. Other staff in the NSD includes two laboratory analysts who perform chemical and radiochemical analyses in the laboratory.

The licensee described the procedures used for receiving and processing shipments of radioactive material. Packages containing SNM samples are received at the licensee's facility and delivered to the NSD for processing, including receipt surveys as required, which are typically performed near the RSO's office. Receipt records for packages are created for the Nuclear Materials Management and Safeguards System (NMMSS) and transmitted to NMMSS. An internal record is created for each sample in the licensee's order system, specifying the analyses to be performed on the sample and serving as the tracking mechanism for samples being processed. A group of rooms is maintained as a restricted area, within which are the laboratories and instruments used for chemical analysis. Surveyed packages are delivered to the chemistry laboratory where they are opened and samples removed and prepared for analysis.

The licensee collects any wastes produced during the processing and analysis of samples and disposes of it as radioactive waste. Any remaining portion of samples which is not consumed during analysis is typically returned to the customer and the NMMSS database is updated accordingly.

c. Conclusions

No violations or safety concerns were identified in this area.

III. Management Oversight of the Program

a. Inspection Scope

Inspectors reviewed the licensee's management controls and organizational structure involved with handling radioactive materials.

b. Observations and Findings

The inspectors contacted licensee representatives including the General Manager, the NSD Manager/RSO, laboratory analysts, maintenance staff, and material handling personnel. The licensee has a small staff handling radioactive materials and this staff typically works in close proximity to each other. The RSO noted two differences in handling and characteristics of this shipment compared with other similar shipments: shipping papers were removed from the package exterior prior to opening of the package, and typical packages previously received from the shipper have included only one interior sample container whereas the shipper's documents indicate this package contained two sample containers. The potential significance of these differences is discussed in section IV of this report.

The licensee has procedures addressing receipt and handling of radioactive materials which are general in nature and were followed in the handling of the package in question. Procedural details were determined by the individuals performing the work and these activities relied upon successful interpersonal communications between the few members of the Nuclear Department.

c. Conclusions

Management oversight of the program for handling of radioactive material in the unaccounted for sample was inadequate, resulting in the loss of SNM. Oral communications among licensee staff were not effective in coordinating activities related to processing of the sample in question and the licensee's procedures were not sufficient to assure correct processing and accounting for the sample. Additional discussion is included in section IV of this report.

IV. Material Receipt, Use, Transfer, and Control

a. Inspection Scope

The inspectors toured the facility, reviewed records and interviewed personnel to determine the sequence of events related to processing of the shipment containing the sample reported as missing by the licensee. Procedures were reviewed for receiving and handling packages containing radioactive material and for controlling material at the facility. Inspectors interviewed Ledoux personnel involved in handling the package in question, as well as other personnel who handled the container and packing materials after removal of the radioactive materials.

b. Observations and Findings

The licensee described the flowpath through which the package was moved as it had been handled, demonstrating what activities had been performed in sequence. Each activity was demonstrated and described by the individual who had performed that activity with the package in question.

Package Receipt
The package containing the SNM was received by the licensee on March 30, 2005. Through interviews, it was noted that the licensee had separated the documents describing package contents from the package itself at the time the receipt radiological survey was performed. The shipping documents were used to initiate a work order record file in the computerized laboratory information management system for the samples to be analyzed.

Package Moved to Laboratory
After completion of the receipt survey, the package was moved to the analytical laboratory where it was stored until April 1, 2005. The licensee first broke the package security seal and opened the package on April 1. One sample container was removed and found to contain six samples. Based on the sample analysis orders the analyst expected to find seven samples, and a cursory search was performed to locate the seventh sample, including a look inside the open shipping package. Licensee staff told the inspectors there was some confusion at the time about where the seventh sample was, and the contents of this package and another similar drum stored in the lab were searched in the unsuccessful effort to locate the seventh sample. At the time of this search the package was filled with packaging “peanuts”. However, without the package shipping documents in the lab at that time it was apparently not clear that the seventh sample had been shipped inside a second container within the same shipping package, and additional efforts to find the sample were put aside while other analytical work proceeded.

Package Removed from the Laboratory
On April 12 the licensee was preparing to analyze the samples and noted that the seventh sample was still not located with the other six samples. Staff reinitiated the search for the seventh sample in earnest. One of the laboratory

analysts stated that the package and its packing materials ("peanuts") had been examined prior to removing it from the laboratory and the seventh sample was not found. The licensee determined that the shipping package and its contents had been removed from the laboratory, turned over to maintenance staff, and placed into the waste dumpster on or about April 8.

Package Disposal Possibilities

The waste dumpster is emptied approximately daily by a contractor and the package in question had therefore been removed along with other trash in the dumpster. The inspectors contacted the waste hauling contractor and the truck driver who serviced the licensee's location, who stated that on both Saturday, April 9, 2004, and Tuesday, April 12, 2005, the dumpster was picked up and loaded into a refuse truck. The driver reported these pickups occurred between about four a.m. and six a.m.. The driver used his key to access the area gate, picked up the dumpster using the truck's hoist mechanism, dumped it into the refuse truck, returned the empty dumpster and relocked the area. The driver stated that he did not inspect the contents of the dumpster prior to its disposal and therefore had no recollection of the contents. On both days, following the pickup at Ledoux, the driver then proceeded to collect other waste from other customers.

Later in the day on both Saturday, April 9, 2004, and Tuesday, April 12, 2005, a second driver for the contract waste hauler drove the filled refuse truck to the transfer station located in Closter, New Jersey. The driver reported that on both April 9 and 12, the fully loaded refuse truck was backed up to the trash pile within the transfer station and emptied onto it in a routine, uneventful manner.

The inspector visited the Closter Transfer Station and discussed operations with the station owner's Sanitation Manager. Refuse trucks were observed dumping their contents at the edge of the refuse pile while overhead grapple hooks were simultaneously loading the materials from other areas of the pile into waiting tractor trailers delivering the material to contracted landfills. The refuse trucks were monitored for radioactive material as part of the weighing process, however no alarms were reported during the period in question. The inspectors noted that the small quantity of missing radioactive material would not be expected to be detected by these monitors. The manager reported that the transfer station is emptied on a daily basis in preparation for the next day's receipt of material and therefore the Ledoux refuse collected on April 12, 2004 would have already been shipped to a landfill. Subsequent discussions with transfer station owner's management indicated that the waste transferred during the period in question could have gone to Pennsylvania landfills located in Keystone, Somerset, Cumberland, and Greentree, as well as one in Seneca Falls, NY. All of these landfills received refuse shipped from the Closter transfer station.

Other Licensee Investigation Actions

The licensee also contacted the shipper of the sample to investigate the possibility that the missing sample had not been inside the package when it was shipped. The shipper provided a copy of the Radioactive Material Packing List

document showing the signatures of the individuals who had verified and attested to the accuracy of the contents placed into the package. The licensee also determined that the original security seal was intact on the package when it was received, precluding the possibility of the missing sample being removed from the package during transport.

On May 11, 2005, the licensee provided a written update to the April 12, 2005, telephone report to the NRC. The updated report included a discussion of the licensee's corrective actions to prevent recurrence.

c. Conclusions

Based on information developed during this inspection the inspectors concluded that the licensee did not verify the contents of the package to assure consistency with the accompanying shipping documents. The shipping container and packing materials had been disposed of by the time the licensee noticed a discrepancy and was unable to locate one of the samples. It is therefore likely that the missing seventh sample was not removed from the package and remained inside it when the package was disposed. The licensee staff stated that the package was examined and surveyed to assure no radioactive material remained inside, however, at the time of the survey the individual performing the survey did not know a sample was unaccounted for and would probably not have expected to find another sample when one sample container had already been removed. Licensee staff stated that similar packages previously received from the shipper had a single sample container inside. The survey performed of the package was insufficient to detect the remaining sample.

The inspectors also conclude that the shipper did place the SNM into the shipped package. Four different individuals at the shipper's location signed the packing list indicating that the package contents and packing list were consistent. Based on review of this document and NRC staff interviews of the shipper's personnel, the inspectors concluded the sample was contained in the package delivered to Ledoux on March 30, 2005.

The licensee attempted to locate the missing SNM as soon as it was recognized that it was missing, and reported the circumstances to the NRC as required. Disposal of the package and packing materials before the licensee verified the package contents made it impossible to successfully investigate the loss and recover the missing material. The inspectors noted that since it is concluded that the missing SNM sample was contained in the package received by Ledoux, the licensee did not perform an adequate survey of the package and packing materials to detect the missing radioactive material, which is a violation of NRC regulations in 10 CFR 20.1501(a)(1). NRC regulations also require the licensee to secure licensed materials stored in controlled or unrestricted areas from unauthorized removal. The inspectors noted that the failure to secure and properly transfer or dispose of radioactive material was a violation of NRC regulations in 10 CFR 1801, 10 CFR 20.2001 (a)(1) and 10 CFR 70.42.

The licensee described corrective actions to prevent recurrence, including stating that two employees will verify and document that the contents and associated documentation

are correct upon arrival of a future package. A sample receipt form will be used to record the verification of package contents, as well as other information concerning the sample and the final disposition of the container. Any discrepancies identified will immediately be brought to the attention of the Manager of Nuclear Services.

There is minimal risk of radiation exposure to members of the public presented by this lost SNM. There is little risk from external radiation exposure, with the shipper reporting the sample container as measuring less than 0.1 mrem/hr. There is also no pathway present for exposure to respirable airborne particles of the material because it was buried in a landfill.

V. Exit Meeting

The inspectors met with licensee management at the conclusion of the onsite portion of the inspection on April 14, 2005. Additional discussion was held by telephone with licensee management on July 8, 2005. Results of the inspection were discussed, including the violation described in section IV of this report.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Bruce Peterson, General Manager
Charles Avallone, Nuclear Services Department Manager
Carl Kivulis, Laboratory Analyst
John Bryant, Laboratory Analyst
Lenny Sunga, maintenance mechanic

State of New Jersey

William Csaszar, Research Scientist, Dept. Of Environmental Protection
Michael Rinaldi, State Police

Others

Scott Roberts, Manager, Miele Sanitation Company
Mike Capasso, waste truck driver, Frank Capasso, Inc.
Carl Ciampi, waste truck driver, Frank Capasso, Inc.
Joseph Miele, Owner, Miele Sanitation Company