



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 E. Lamar Blvd., SUITE 400
ARLINGTON, TEXAS 76011-4005

December 4, 2008

EA-08-279

Montana State University
Attn: Jeff Shada
Director, Safety and Risk
Management Department
Radiation Safety Office
1160 Research Drive
Bozeman, Montana 59718-6856

SUBJECT: NRC INSPECTION REPORT 030-00871/2008-001 AND NOTICE OF VIOLATION

Dear Mr. Shada:

This refers to the unannounced inspection conducted on September 10, 2008, at the main campus of Montana State University in Bozeman, Montana. The inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel. The inspectors discussed the preliminary inspection findings with you at the conclusion of the onsite portion of the inspection. The inspectors received follow-up e-mail correspondence during the weeks of September 8 and September 15, 2008. The inspectors conducted a final exit briefing telephonically with you on October 30, 2008. The enclosed report presents the results of this inspection.

In a telephone conversation on October 30, 2008, Anthony Gaines of my staff informed you that the NRC was considering escalated enforcement for a violation of NRC requirements. The apparent violation involved a failure to use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal, whenever portable gauges are not under the control and constant surveillance of the licensee. The circumstances surrounding this apparent violation, the significance of the issue, and the need for lasting and effective corrective action were discussed with you and members of your staff at the inspection exit briefing. Additionally, you have initiated corrective actions, some of which are documented in this report, to address the violation. Mr. Gaines also informed you that we had sufficient information regarding the apparent violation and your corrective actions to make an enforcement decision without the need for a predecisional enforcement conference or a written response from you. You indicated that Montana State University did not believe that a predecisional enforcement conference or written response was needed.

Based on the information developed during the inspection and the information that you provided in the e-mail correspondence noted above, the NRC has determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and

the circumstances surrounding it are described in detail in the subject inspection report. As noted above, the violation involved a failure to use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal. The portable gauges were located at two different locations on campus. Each location had only a single barrier to prevent unauthorized removal of the portable gauges while in storage.

The NRC considers this violation significant because this security requirement fundamentally provides a reasonable assurance that the portable gauges will be secured from unauthorized access or theft. Therefore, this violation has been categorized in accordance with the NRC Enforcement Policy at Severity Level III. The NRC Enforcement Policy may be found on the NRC's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

In accordance with the NRC Enforcement Policy, a base civil penalty in the amount of \$3,250 is considered for a Severity Level III violation.

Because your facility has not been the subject of escalated enforcement actions within the last two inspections, the NRC considered whether credit was warranted for *Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. Based on your prompt and comprehensive corrective actions, the NRC has determined that *Corrective Action* credit is warranted. Your corrective actions included placing the portable gauges in secure containers within secure rooms. In addition, the external window to the room in the Safety and Risk Management building had been sealed from the inside.

Therefore, to encourage prompt and comprehensive correction of violations, and in recognition of the absence of previous escalated enforcement action, I have been authorized, after consultation with the Director, Office of Enforcement, not to propose a civil penalty in this case. However, significant violations in the future could result in a civil penalty. In addition, issuance of this Severity Level III violation constitutes escalated enforcement action that may subject you to increased inspection effort.

The NRC has also determined that two Severity Level IV violations of NRC requirements occurred. These violations were also evaluated in accordance with the NRC Enforcement Policy. These violations are cited in the enclosed Notice and the circumstances surrounding them are described in detail in the subject inspection report. These violations are being cited because they were identified by the NRC, rather than being identified by the licensee.

You are required to respond to the Notice and should follow the instructions specified in the enclosed Notice when preparing your response. The information provided in the excerpt from NRC Information Notice 96-28 may be helpful when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response, 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's 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. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of

your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such information, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information) The NRC also includes significant enforcement actions on its Web site at www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

Should you have any questions concerning this inspection, please contact Mr. Michael Vasquez at (817) 860-8130.

Sincerely,

/RA/

Elmo E. Collins, Regional Administrator
US NRC Region IV

Docket No.: 030-00871
License No.: 25-00326-06

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 030-00871/2008-001
(w/Attachment)
3. Excerpt from NRC Information Notice 96-28

cc w/Enclosures 1 and 2: Montana Radiation Control Program

Montana State University, EA 08-279

DISTRIBUTION via E-mail:

RidsSecyMailCenter Resource
RidsEdoMailCenter Resource
RidsOgcMailCenter Resource
RidsNmssOd Resource
RidsOcfoMailCenter Resource
RidsRgn3MailCenter Resource
Elmo.Collins@nrc.gov
Art.Howell@nrc.gov
Karla.Fuller@nrc.gov
William.Jones@nrc.gov
Mark.Haire@nrc.gov
Christi.Maier@nrc.gov
Bill.Maier@nrc.gov
Victor.Dricks@nrc.gov
Anthony.Gaines@nrc.gov

RidsOcaMailCenter Resource
RidsEdoMailCenter Resource
RidsFsmeOd Resource
RidsOpaMail Resource
RidsRgn1MailCenter Resource
OEWEB Resource
Chuck.Casto@nrc.gov
Chuck.Cain@nrc.gov
Vivian.Campbell@nrc.gov
Michael.Vasquez@nrc.gov
Jack.Whitten@nrc.gov
Blair.Spitzberg@nrc.gov
Randy.Erickson@nrc.gov
Linda.Mclean@nrc.gov
Jason.Razo@nrc.gov

Nick.Hilton@nrc.gov
S.Woods@nrc.gov
Leelavathi.Sreenivas@nrc.gov
Sally.Merchant@nrc.gov
Nicole.Coleman@nrc.gov
Michele.Burgess@nrc.gov
Angela.McIntosh@nrc.gov
Marisa.Herrera@nrc.gov
RIV Materials Docket File

SUNSI Review Completed: ADG ADAMS: Yes No Initials: ADG
 Publicly Available Non-Publicly Available Sensitive Non-Sensitive

Draft: S:\DNMS\~ESCALATED ENFORCEMENT\ACTIVE CASES\MSU-Bozeman\IR-NOV_EA-08-279_MSU-Bozeman.doc Final: R\ DNMS\2008\MSU-Bozeman IR 08-01 EA-08-279 ML083400121

RIV:DNMS:NMSB-A	NMSB-A	C: NMSB-A	D: DNMS
JMRazo	ADGaines	GMVasquez	ATHowell
/RA/	/RA/	/RA/	/RA CLCain for/
10/28/08	11/10/08	11/24/08	12/01/08
ACES	RC	OE	RA
CMMaier	KSFuller	NColeman	EECollins
/RA/	/RA/	/RA/	/RA/
12/01/08	12/02/08	12/03/08	12/04/08

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

NOTICE OF VIOLATION

Montana State University
Bozeman, Montana

Docket No. 030-00871
License No. 25-00326-06
EA 08-279

During an NRC inspection conducted on September 10, 2008, violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. 10 CFR 30.34(i) requires the licensee to use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal whenever portable gauges are not under the control and constant surveillance of the licensee.

Contrary to the above, as of September 10, 2008, the licensee did not use a minimum of two independent physical controls that formed tangible barriers to prevent unauthorized removal of the gauges when not under the control and constant surveillance of the licensee. Specifically, the licensee stored portable gauges at two separate locations on campus using only one independent physical control that formed a tangible barrier to prevent unauthorized removal of the gauges when not under the control and constant surveillance of the licensee.

This is a Severity Level III violation (Supplement VI)

- B. 10 CFR 20.1902(a) requires that the licensee shall post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."

10 CFR 20.1003 states, in part, that a *radiation area* means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

Contrary to the above, from May to September 10, 2008, the licensee failed to post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA." Specifically, the licensee failed to post the gauge storage room of the Safety and Risk Management building, a room accessible to individuals and a radiation area (radiation dose rate of approximately 0.010 rem in one hour at 30 centimeters from the radiation sources), with a sign bearing the radiation symbol and the words "CAUTION, RADIATION AREA."

This is a Severity Level IV violation (Supplement IV).

- C. 10 CFR 20.1301(a)(1) requires, in part, that licensees shall conduct operations so that the total effective dose equivalent to individual members of the public from the licensed operations does not exceed 0.1 rem (1 mSv) in a year.

10 CFR 20.1302 (b)(1) requires that the licensee shall show compliance with the annual dose limit in 10 CFR 20.1301 by demonstrating compliance by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit.

Contrary to the above, from at least 2003 until September 10, 2008, the licensee failed to demonstrate compliance with 10 CFR 20.1301 by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation did not exceed the annual dose limit. Specifically, the licensee failed to demonstrate that it conducted operations so that the individual member of the public likely to receive the highest annual dose from its licensed operations did not receive a total effective dose equivalent which exceeded 0.1 rem (1 mSv) in a year.

This is a Severity Level IV violation. (Supplement IV)

Pursuant to the provisions of 10 CFR 2.201, Montana State University is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-001 with a copy to the Regional Administrator, Region IV, 612 East Lamar Blvd., Arlington, Texas 76012-4005 within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-08-279" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (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. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response 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's Web site at www.nrc.gov/reading-rm/pdr.html or www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information).

In accordance with 10 CFR 19.11, you are required to post this Notice within 2 working days.

Dated this 4th day of December 2008

U.S. Nuclear Regulatory Commission
Region IV

Docket No.: 030-00871
License No.: 25-00326-06
Report No.: 030-00871/2008-001
EA No.: 08-279
Licensee: Montana State University
Facilities: Main Campus
Location: Bozeman, Montana
Dates: September 10, 2008 through October 30, 2008
Inspectors: Anthony Gaines, Senior Health Physicist
Nuclear Materials Safety Branch A
Jason Razo, Health Physicist
Nuclear Materials Safety Branch A
Approved By: Michael Vasquez, Chief
Nuclear Materials Safety Branch A
Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Montana State University
NRC Inspection Report 030-00871/2008-001

This was a routine, unannounced inspection of licensed activities involving the use and storage of byproduct material at the main campus of Montana State University-Bozeman (Montana State University). The inspection was an examination of activities conducted under NRC Materials License 25-00326-06, as they relate to radiation safety and to compliance with the Commission's rules and regulations, and the conditions of the license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. This report describes the findings of the inspection.

Program Overview

Montana State University is an academic broadscope licensee that uses both sealed and unsealed byproduct material for use in research and development. In addition, Montana State University possesses and uses byproduct material (cesium-137 and americium-241) in the operation of portable moisture density gauging devices in areas of NRC jurisdiction, including temporary jobsites. The radiation safety committee approves authorized users to use different isotopes in various laboratories throughout campus. At the time of the inspection, portable gauges were being stored in two separate locations on campus. (Section 1)

Inspection Findings Considered for Escalated Enforcement

- The licensee stored portable gauges at two separate locations on campus with only one independent physical control that formed tangible barriers to prevent unauthorized removal of the gauges when not under the control and constant surveillance of the licensee. This was identified as a violation of 10 CFR 30.34(i). (Section 2.2)

Inspection Findings Not Considered for Escalated Enforcement

- Two additional violations were identified during this inspection, which included the following:
 - 1) Failure to post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA." (Section 2.3)
 - 2) Failure to show that the total effective dose equivalent to the individual member of the public likely to receive the highest dose from licensee operations does not exceed the annual dose limit. (Section 2.3)

Corrective Actions

- On September 12, at the Safety and Risk Management building, the licensee placed the gauges in locked cabinets inside a locked room.
- On September 12, at the Linfield Hall building, the licensee secured the gauges in a locked cabinet inside a locked room.

- On September 16, the licensee sealed the window in a room where portable gauges are stored, to provide an additional tangible barrier for the gauges. (Section 3)

Report Details

1 Program Overview (87126)

1.1 Inspection Scope

The inspectors reviewed the license and supporting documentation, interviewed licensee staff, and examined storage locations at the main campus. Collectively, the documents reviewed described the licensee's implementation of its NRC license requirements and its radiation safety program.

1.2 Observations and Findings

Montana State University possesses 22 portable gauging devices at its main campus in Bozeman, Montana. At the time of the inspection, all of the gauges were in storage at either Linfield Hall or the Safety and Risk Management facility. All radiation program records were stored at the Safety and Risk Management building where the Radiation Safety Officer handles activities associated with the gauges and other radioactive materials.

2 Inspection Findings (87126)

2.1 Inspection Scope

Interviews with licensee staff and observations at campus laboratories and storage locations constituted the bulk of the inspection. Licensed activities were examined as they relate to the safety and security of the portable gauges and the licensee's efforts to protect members of the public. The inspectors evaluated training, transportation, events, audits, instrument calibration, dosimetry, and storage of licensed material.

2.2 Observations and Findings Considered for Escalated Enforcement

2.2.1 Material Security and Control

10 CFR 30.34(i) requires the licensee to use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal whenever portable gauges are not under the control and constant surveillance of the licensee.

The inspectors reviewed the storage of the gauges at the Safety and Risk Management building. The storage room was in a secure part of the building at the end of a hallway that had locked doors. In addition, the door to the room was locked. The room had a ground-level window that could be easily defeated and the portable gauges were stacked under the window and could be reached and removed if the window was broken. Defeating the window would allow access to the room and to the gauges, possibly without being detected. Therefore, the window provided only one tangible barrier to secure the portable gauges from unauthorized removal.

The licensee stored the remainder of the gauges at Linfield Hall. The licensee secured the gauges within their cases in the designated storage room. The licensee locked the door to the storage room when not in use. The hallway leading to the room was not

controlled, and members of the public had access to the hallway during school hours. Therefore, only one barrier, the locked door, prevented the gauges from unauthorized removal.

From May 2008, when the licensee transferred the gauges from Gaines Hall to the Safety and Risk Management building, until the date of the inspection, the licensee failed to provide two independent physical controls while the portable gauges were not under constant surveillance by the licensee. The licensee stored the gauges with one independent physical control that formed a tangible barrier to prevent unauthorized removal of the gauges when not under the control and constant surveillance of the licensee. From at least 2003 until the date of the inspection, the licensee failed to provide two independent physical controls while portable gauges were not under constant surveillance by the licensee at Linfield Hall. The licensee stored the gauges with one independent physical control that formed a tangible barrier to prevent unauthorized removal of the gauges when not under the control and constant surveillance of the licensee. These instances were identified as two examples of a violation of 10 CFR 30.34(i). (030-00871/08-01)

2.3 Observations and Findings Not Considered for Escalated Enforcement

2.3.1 Radiation Postings

10 CFR 20.1902(a) requires that the licensee post each radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA."

In accordance with 10 CFR 20.1003, a *radiation area* means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

During the inspection, the inspectors and the licensee performed confirmatory radiation survey measurements. The surveys in the storage room at the Safety and Risk Management building showed dose rates of 0.010 rem per hour at 30 centimeters from the radiation sources. The door to the room was posted with a "CAUTION, RADIOACTIVE MATERIALS" sign. The room was not posted as a *radiation area*. This was identified as a violation of 10 CFR 20.1902(a). (030-00871/08-02)

2.3.2 Radiation Surveys

10 CFR 20.1301(a)(1) requires, in part, that licensees shall conduct operations so that the total effective dose equivalent to individual members of the public from the licensed operations does not exceed 0.1 rem (1 mSv) in a year.

10 CFR 20.1302 (b)(1) requires that a licensee shall show compliance with the annual dose limit in 10 CFR 20.1301 by demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit.

During the inspection, the inspectors found that the licensee had not performed a public dose assessment for the gauge storage room at the Safety and Risk Management

building since the licensee moved additional licensed material to the room in May. In addition, the licensee did not perform this assessment for the gauges stored at Linfield Hall. This was identified as a violation of 10 CFR 20.1302(b)(1). (030-00874/08-03)

2.4 Conclusions

The inspection identified one violation involving two examples of failing to use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal whenever portable gauges are not under the control and constant surveillance of the licensee.

Additionally, the inspection identified two violations involving: (1) failure to post a radiation area; and (2) failure to perform a public dose estimate.

3 **Corrective Actions (87126)**

Via e-mail, the licensee affirmed that on September 12 the gauges at both the Safety and Risk Management building and Linfield Hall were secured by two independent physical controls that formed tangible barriers.

Specifically, at the Safety and Risk Management building the licensee placed the gauges in locked cabinets inside the locked storage room. An additional barrier was added when, on September 16, the licensee sealed the window in this storage room with 2x4's and plywood.

For the second instance, at the Linfield Hall building the licensee secured the gauges in a locked cabinet inside the locked storage room. The locked cabinet and locked door were the two barriers.

The licensee also implemented corrective actions to address the violation involving posting during this inspection. Licensee personnel immediately placed a "CAUTION, RADIATION AREA" sign on the storage room door at the Safety and Risk Management building.

4 **Exit Meeting Summary**

A preliminary exit briefing was conducted at the conclusion of the on site inspection with the Director of Safety and Risk Management, the Radiation Safety Officer, and the Radiation Safety Committee Chair. A final telephonic exit briefing was conducted with representatives of Montana State University on October 30, 2008, to review the inspection findings as presented in this report. Licensee representatives acknowledged the inspectors' findings. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACT

Licensee

Jeff Shada, Director of Safety and Risk Management
Curtis Hofer, Radiation Safety Officer
Mark Quinn, Radiation Safety Committee Chair
Lucio Zell, Assistant Radiation Safety Officer.

INSPECTION PROCEDURES USED

87126 Industrial/Academic/Research Programs

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

030-00874/2008-001	VIO	A violation involving the failure to secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas
030-00874/2008-002	VIO	A violation involving the failure to post a radiation area
030-00874/2008-003	VIO	A violation involving the failure to perform a public dose assessment

Closed

None

Discussed

None

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
NRC	Nuclear Regulatory Commission
EA	Enforcement Action
VIO	Violation
Sv	Sievert