

December 1, 2004

Dr. S. Gottfredson  
Executive Vice Chancellor  
University of California, Irvine  
Irvine, CA 92697-2025

SUBJECT: NRC INSPECTION REPORT NO. 50-326/2004-201 AND NOTICE OF VIOLATION

Dear Dr. Gottfredson:

This letter refers to the inspection conducted on November 15-18, 2004, at your University of California, Irvine Nuclear Research Reactor Facility. The inspection included a review of activities authorized for your facility. The enclosed report presents the results of that inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress.

Based on the results of this inspection, the Nuclear Regulatory Commission (NRC) has identified a violation of NRC requirements. The violation is cited in the enclosed Notice of Violation (Notice). The circumstances surrounding it are described in detail in the subject inspection report. The violation is of concern because it should have been prevented by your corrective action for a previous violation.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) <http://www.nrc.gov/reading-rm/adams.html>. (Note: Public access to ADAMS has been temporarily suspended so that security reviews of publicly available documents may be performed and potentially sensitive information removed. Please check the NRC Web site for updates on the resumption of ADAMS access.)

Should you have any questions concerning this inspection, please contact Craig Bassett at (404) 562-4712.

Sincerely,

**/RA/**

William D. Beckner, Program Director  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 50-326  
License No. R-116

Enclosures: 1. Notice of Violation  
2. NRC Inspection Report  
cc w/ enclosures: Please see next page

University of California at Irvine

Docket No. 50-326

cc w/enclosures:

Dr. Richard Chamberlin, Chair  
Department of Chemistry  
University of California, Irvine  
Irvine, CA 92697-2025

Dr. George E. Miller  
Department of Chemistry  
University of California, Irvine  
Irvine, CA 92697-2025

Test, Research and Training  
Reactor Newsletter  
202 Nuclear Sciences Center  
University of Florida  
Gainesville, FL 32611

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NRR enforcement coordinator (Only for IRs with NOVs, O10-H14)

ACCESSION NO.: ML043290135

TEMPLATE #: NRR106

OFFICE	RNRP:RI	RNRP:LA	RNRP:SC	RNRP:PD
NAME	CBassett	EHylton	PMadden	WBeckner
DATE	11/ 29 /2004	11/ 26 /2004	11/ 29 /2004	12/ 1 /2004

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## NOTICE OF VIOLATION

University of California, Irvine (UCI)  
UCI Nuclear Reactor Facility

Docket No. 50-326  
License No. R-116

During an NRC inspection conducted on September 16-19, 2002, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

10 CFR 71.5(a) requires that a licensee who delivers licensed material to a carrier for transport comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation (DOT) in 49 CFR Parts 171-189.

49 CFR 171.2(a) prohibits any person from offering hazardous material for transportation unless, among other requirements, the hazardous material is properly classified, described, packaged, marked, labeled, and in condition for shipment required or authorized under the Hazardous Material Regulations (49 CFR 171-177).

Contrary to the above, various items of information were not present on the licensee's shipping papers for a shipment of radioactive material made on February 25, 2003, as follows:

1. The shipping papers did not list the chemical form of the radioactive material being shipped as required by 49 CFR 172.203(d)(3).
2. Documentation of shipment did not indicate that the radiation level present on the external surface of the package offered for transport was below the acceptable levels indicated in 49 CFR 173.441.
3. The shipping papers for the shipment did not list the proper TI of the radioactive material being shipped as required by 49 CFR 172.203(d)(6).
4. The shipping papers for the shipment indicated that a Yellow II label had been used for the shipment instead of a Yellow III label. The Yellow III label would have been the correct label according to the TI listed on the shipping papers, as required by 49 CFR 172.403.

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

Pursuant to the provisions of 10 CFR 2.201, the University of California, Irvine is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the cognizant inspector, 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" 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

ENCLOSURE 1

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, D.C. 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room (PDR) or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS), 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. ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) <http://www.nrc.gov/reading-rm/adams.html>. (Note: Public access to ADAMS has been temporarily suspended so that security reviews of publicly available documents may be performed and potentially sensitive information removed. Please check the NRC Web site for updates on the resumption of ADAMS access.) 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). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated at Rockville, Maryland  
this 1<sup>st</sup> day of December 2005

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION

Docket No: 50-326

License No: R-116

Report No: 50-326/2004-201

Licensee: The Regents of the University of California

Facility: University of California - Irvine Nuclear Reactor Facility

Location: Department of Chemistry  
University of California - Irvine  
Irvine, CA

Dates: November 15-18, 2004

Inspectors: Craig Bassett  
Kevin Witt

Approved by: William D. Beckner, Program Director  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

ENCLOSURE 2

## EXECUTIVE SUMMARY

University of California, Irvine (UCI)  
UCI Nuclear Reactor Facility  
NRC Inspection Report No. 50-326/2004-201

The primary focus of this routine, announced inspection was the onsite review of selected activities at the UCI Class II research reactor's safety programs including: organization and staffing, review and audit and design change functions, radiation protection program, environmental protection program, procedures, and transportation of radioactive materials. The licensee's programs were generally directed toward the protection of public health and safety, and were in compliance with NRC requirements. One violation was identified for failure to ship radioactive material in accordance with 10 CFR 71.5(a) and 49 CFR Parts 171-189.

### Organization and Staffing

- The operations organizational structure and responsibilities were consistent with Technical Specification requirements but currently two reactor operator positions are vacant.
- Shift staffing met the minimum requirements for current operations.

### Review and Audit

- The review and audit program was being conducted acceptably by the Reactor Operations Committee.

### Radiation Protection Program

- Surveys were being completed and documented acceptably to permit evaluation of the radiation hazards present.
- Postings met the regulatory requirements specified in 10 CFR Parts 19 and 20.
- Personnel dosimetry was being worn as required and doses were well within the licensee's procedural action levels and NRC's regulatory limits.
- Radiation monitoring equipment was being maintained and calibrated as required.
- The Radiation Protection Program being implemented by the licensee satisfied regulatory requirements.

### Effluent and Environmental Monitoring

- Effluent monitoring satisfied license and regulatory requirements and airborne releases were within the specified regulatory and Technical Specification limits.

### Procedures

- Facility procedural review, revision, and implementation generally satisfied Technical Specification requirements.

Transportation of Radioactive Materials

- The licensee's program for transportation of radioactive material including preparing packages for shipment and completing shipping papers was acceptable.
- A violation was noted for failure to comply with the program for transportation of radioactive material with respect to preparing packages for shipment and completing shipping papers.



## REPORT DETAILS

### **Summary of Plant Status**

The licensee's TRIGA Mark I research reactor, licensed to operate at a maximum steady-state thermal power of 250 kilowatts, continued to be operated in support of education, operator training, surveillance, and sample irradiations. During this inspection, the reactor was operated to support the completion of a full power radiation survey.

### **1. Organizational Structure and Staffing**

#### a. Inspection Scope (Inspection Procedure [IP] 69001)

The inspectors reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of Section 6.1 of Technical Specifications (TS), Amendment No. 6, dated November 17, 2000, were being met:

- University of California, Irvine Nuclear Reactor Facility (UCI NRF) organizational structure and staffing
- staff qualifications
- management responsibilities
- staffing requirements for the safe operation of the facility
- selected portions of the operations log for the past year through the present
- UCI NRF Standard Operating Procedure (SOP) Number (No.) 3, "Personnel," Revision (Rev) 3, Approved March 2000

#### b. Observations and Findings

The licensee's organizational structure and staffing had not functionally changed since the last inspection. The reactor staff consisted of one permanent half-time staff member (who was the Reactor Supervisor as well as a licensed Senior Reactor Operator [SRO]), one part-time licensed SRO (who only provided coverage during routine reactor operations), and support staff consisting of one quarter-time student. Because all the aforementioned individuals have various ongoing duties and activities besides those related to the reactor, the time dedicated to reactor operation and maintenance is quite limited.

The campus health physics (HP) staff consisted of the Radiation Safety Officer (RSO), two Health Physicists, and three technical staff members. Since the previous inspection, the former RSO had retired and a new person was selected to fill that position. In addition to having responsibility for the university's broad scope state byproduct license and other material licenses, they provided support to the reactor staff when requested and performed specific monthly and quarterly inspections/surveys of the reactor conforming to the campus safety program. The reactor staff performed most HP functions at the reactor. Coordination of radiation protection activities between the HP staff and the reactor staff was acceptable.

The reactor operations staff satisfied the training and experience requirements stipulated in the TS. The operations log and associated records confirmed that shift staffing met the minimum requirements for duty and on-call personnel. However, the inspectors noted that the licensed reactor staff, together with current health physics support, appeared challenged for the present operation workload, even though that

workload was limited. As noted in past reports, consideration should be given to hiring one or two part-time individuals who could augment support for the operation and perhaps eventually assume the responsibilities of the current Reactor Supervisor and the SRO.

c. Conclusions

The organizational structure and functions were consistent with TS requirements.

**2. Review and Audit and Design Change Functions**

a. Inspection Scope (69001)

The inspectors reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of TS Section 6.2 and UCI NRF SOP No. 1 were being met:

- Reactor Operations Committee (ROC) meeting minutes from April 2003 to date
- safety review and audit records for the past two years
- UCI NRF SOP No. 1, "Introduction," Rev 3, Approved March 2000

b. Observations and Findings

(1) Review and Audit Functions

The ROC membership satisfied TS requirements and the licensee's procedural rules. The ROC had semiannual meetings as required with a quorum being present at those meetings. Review of the committee meeting minutes indicated the ROC provided appropriate guidance and direction for reactor operations, and ensured suitable use and oversight of the reactor.

The review function of the ROC stipulated in TS Section 6.2 was fulfilled by Office of Environmental Health and Safety (EH&S) personnel as they conducted their surveys and walk through tours of the facility. This was reported to the ROC through the EH&S Report given during the semiannual ROC meetings. Since the last inspection all required audits of reactor facility activities and reviews of programs, procedures, and facility operations had been completed and documented.

(2) Design Change Functions

The approval of changes and/or modifications were documented in the ROC minutes. Changes were controlled by requiring a staff evaluation and an ROC review although there was no written procedure that outlined the process. Completion of the changes or modifications were recorded in the Reactor Operations Logbook, which was also used to document maintenance activities at the facility. The inspectors noted that no changes or modifications had been initiated recently by the licensee except those involving security issues. The documentation and information concerning these changes and modifications were acceptable. Through this review, the inspectors verified that the design change protocol, presently in place at the facility, was functioning as required and was acceptable for the current operation and staffing of the facility.

c. Conclusions

The review and audit program was being conducted acceptably by the Reactor Operations Committee. The licensee's design change protocol was in place and was being implemented as required.

**3. Radiation Protection Program**

a. Inspection Scope (IP 69001)

The inspectors reviewed the following to verify compliance with 10 CFR Parts 19 and 20 and TS Sections 3.3 and 4.5 requirements:

- radiation and contamination survey records documented on the forms in accordance with the guidance contained in UCI NRF SOP No. 5, "Radiological Safety Program"
- radiation and contamination surveys completed by EH&S personnel and documented on the forms in accordance with EH&S procedures
- Nuclear Reactor Facility dosimetry records for 2002 through the first seven months of 2004
- calibration and periodic check records for radiation monitoring instruments documented on the applicable NRF and EH&S forms
- UCI NRF SOP No. 5, "Radiological Safety Program," Rev 3, Approved March 2000

The inspectors also toured the facility, conducted a radiation survey using NRC equipment, and observed the use of dosimetry and radiation monitoring equipment. Licensee personnel were interviewed and radiological signs and postings were observed as well.

b. Observations and Findings

(1) Surveys

The inspectors reviewed weekly and monthly radiation and contamination surveys of the licensee controlled areas conducted by the licensee staff and monthly radiation and quarterly wipe surveys completed by campus Office of Environmental Health and Safety HP personnel. The results were documented on the appropriate forms, evaluated as required, and corrective actions taken when readings or results exceeded set action levels.

The inspectors also observed the conduct of a triennial gamma and neutron survey of the interior and exterior of the facility with the reactor operating at full power. The survey was completed in accordance with UCI NRF SOP No. 5.

(2) Postings and Notices

The inspectors reviewed the postings at the entrances to the facility controlled areas including the Control Room, the Reactor Room, and the two laboratories in the NRF. The postings were acceptable and indicated the radiation hazards present. Other postings also showed the industrial hygiene hazards present in the areas. The facility's radioactive material storage areas were noted to be properly posted. No unmarked radioactive material was detected in the facility. Copies of current notices

to workers required by 10 CFR Part 19 were posted on the bulletin board in the Outer Office/Counting Room leading to the Control Room.

### (3) Dosimetry

The licensee used a National Voluntary Laboratory Accreditation program-accredited vendor, Global Dosimetry Solutions, Inc., to process personnel dosimetry. Through direct observation, the inspectors determined that dosimetry was acceptably used by facility personnel.

An examination of the records for the past two years through July of 2004, showed that all exposures were well within NRC limits and within licensee action levels. Extremity monitoring, accomplished through the use of finger rings, also showed relatively low doses to the hands of staff members. The highest annual whole body exposure received by a single individual for the past two years was approximately 85 millirem. The highest annual extremity exposure for the past two years was approximately 404 millirem.

### (4) Radiation Monitoring Equipment

The calibration of portable survey meters and friskers was typically completed by EH&S personnel while fixed radiation detectors and air monitoring instruments were generally calibrated by licensee personnel. The calibration records of portable survey meters, friskers, fixed radiation detectors, and air monitoring equipment in use at the facility were reviewed. Calibration frequency met the requirements established in the applicable SOPs and records were being maintained as required.

### (5) Radiation Protection Program

The licensee's Radiation Protection Program was established in the UCI Nuclear Reactor Facility SOP No. 5, "Radiological Safety Program," Rev 3, approved March 2000. The program was further explained in the campus document entitled, "UCI Radiation Safety Handbook," dated 1987, Revised 1995, as well as in the campus document "UCI Radiation Safety Manual," Rev 3.2, dated December 1997. The program required that all personnel who had unescorted access to work in a radiation area or with radioactive material receive training in radiation protection, policies, procedures, requirements, and facilities prior to entry. The inspectors verified that licensee staff had received the required radiation protection ("rad worker") training given by the UCI Office of Environmental Health and Safety.

The inspectors also verified that the UCI NRF radiation protection program was being reviewed annually as required.

### (6) ALARA Policy

The ALARA Policy was also outlined and established in the UCI Nuclear Reactor Facility SOP No. 5, "Radiological Safety Program," Rev 3, approved March 2000, and in the other campus documents. The ALARA program provided guidance for keeping doses as low as reasonably achievable and was consistent with the guidance in 10 CFR Part 20.

#### (7) Facility Tours

The inspectors toured the Control Room, the Reactor Room, the Pneumatic Tube Laboratory and the Preparation Laboratory within the NRF. Control of radioactive material and control of access to radiation and high radiation areas were acceptable. The postings and signs for these areas were appropriate.

As noted above, during a tour of the facility the inspectors conducted a radiation survey of the Reactor Room and the two adjacent laboratories and compared the readings noted with those found by the licensee. The results detected by the inspectors were comparable to those found by the licensee. No discrepancies were noted.

#### c. Conclusions

The inspectors determined that, because: (1) surveys were being completed and documented acceptably, (2) postings met regulatory requirements, (3) personnel dosimetry was being worn as required and doses were well within the NRC's regulatory limits, and, (4) radiation monitoring equipment was being maintained and calibrated as required, the Radiation Protection Program being implemented by the licensee satisfied regulatory requirements.

### 4. Effluent and Environmental Monitoring

#### a. Inspection Scope (IP 69001)

The inspectors reviewed the following to verify compliance with the requirements of 10 CFR Part 20 and TS Sections 3.3 and 3.5:

- airborne release records documented in the UCI NRF Annual Reports for the period from July 1, 2002 through and June 30, 2003, and July 1, 2003 through June 30, 2004
- liquid release records also documented in the UCI NRF Annual Reports for the period from July 1, 2002 through and June 30, 2003, and July 1, 2003 through June 30, 2004
- reactor pool water sample analyses documented on the applicable NRF forms
- UCI NRF SOP No. 5, "Radiological Safety Program," Rev 3, approved March 2000

#### b. Observation and Findings

Gaseous releases were monitored as required by TS, calculated as prescribed by procedure, and acceptably documented. The results indicated that the releases were well within Appendix B, Table 2 concentrations, and TS limits. To demonstrate compliance with the annual dose constraints of 10 CFR 20.1101(d), the licensee used the computational method specified in UCI NRF SOP No. 5, Section 5.6. The highest calculated dose that could be received as a result of gaseous emissions from reactor operations was less than 0.5 millirem for the period from July 1, 2002 through and June 30, 2003, and also less than 0.5 millirem for the period from July 1, 2003 through June 30, 2004. These doses were well below the limit set in 10 CFR 20.1101(d) of 10 millirem per year.

The licensee had released liquid from the facility but only by transferring it to the Campus EH&S Office under the State of California Radioactive Material License. Solid radioactive waste was also released to the Campus EH&S Office. The liquid and solid waste was then stored, handled, and/or disposed of in accordance with the State license requirements.

c. Conclusion

Effluent monitoring satisfied license and regulatory requirements and airborne releases were within the specified regulatory and TS limits.

**5. Procedures**

a. Inspection Scope (IP 69001)

The inspectors reviewed selected aspects of the following to verify that the licensee was complying with the requirements of TS Sections 6.2, 6.3, and 6.7:

- records of procedure changes
- observation of procedure implementation
- administrative controls as outlined in UCI NRF SOP No. 1, "Introduction," Rev 3, approved March 2000
- UCI NRF SOP No. 5, "Radiological Safety Program," Rev 3, approved March 2000

b. Observations and Findings

Operations procedures were available for those tasks and items required by the TS and facility directives. Written changes were reviewed and approved by the ROC as required. The SOPs were reviewed as necessary with the last review dated March 2000.

Training of personnel on procedures and changes was acceptable. Through observation of surveys and experiment handling, the inspectors verified that personnel conducted TS activities in accordance with applicable procedures. Records showed that procedures for potential malfunctions (e.g., radioactive releases, contaminations, and reactor equipment problems) had been developed and were implemented as required.

The inspectors noted that two procedural requirements in UCI NRF SOP No. 5 were not being followed. The first required the licensee to take a pool water sample and evaluate it for radioactivity using the liquid scintillation counter every three years. No records could be found showing when the procedure was last done. A second procedural step in SOP No. 5 required the licensee to conduct a weekly inventory of the radiological supplies kept in storage cabinets and maintain an updated list of the supplies in the console SOP binder. During the inspection, this list could not be found. The licensee stated that the two requirements were not safety significant since other procedures sufficiently ensured the safety of the facility. The inspectors agreed with this assessment since a pool water sample is taken and analyzed monthly and emergency supplies, including radiological supplies, are periodically inventoried by the licensee.

The licensee agreed to modify the procedure such that extraneous requirements would be removed. The licensee was informed that this issue will be tracked by the NRC as an Inspector Follow-up Item (IFI) and will be reviewed during a future inspection (IFI 50-326/2004-201-01).

c. Conclusions

Procedural review, revision, and implementation satisfied TS requirements except for two minor deviations from SOP No. 5 noted by the inspectors.

**6. Transportation**

a. Inspection Scope (IP 86740)

The inspectors reviewed the following to verify compliance with regulatory requirements for shipping licensed material:

- records of radioactive material shipments for 2003 through the date of this inspection
- UCI NRF SOP No. 5, "Radiological Safety Program," Rev 3, approved March 2000

The inspectors also interviewed licensee personnel.

b. Observations and Findings

10 CFR 71.5(a) requires that a licensee who delivers licensed material to a carrier for transport comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation (DOT) in 49 CFR Parts 171-189.

49 CFR 171.2(a) prohibits any person from offering hazardous material for transportation unless, among other requirements, the hazardous material is properly classified, described, packaged, marked, labeled, and in condition for shipment required or authorized under the Hazardous Material Regulations (49 CFR 171-177).

The inspectors reviewed the various documents prepared in support of shipments made during 2003 through the date of the inspection. One set of shipping papers of a shipment made on February 25, 2003, and the supporting documentation lacked necessary and required items of information as required by 49 CFR Parts 171 through 177. Other problems were noted as well. The problems noted with the shipping papers and/or the supporting documentation included: (1) failure to list the chemical form of the radioactive material, (2) failure to note the proper Transport Index (TI) for the shipment, (3) failure to document the radiation level on the external surface of the package, and (4) failure to classify the shipment as a Yellow III shipment.

The details for each of the above problems are as follows:

- (1) The shipping papers for the aforementioned shipment did not list the chemical form of the radioactive material being shipped as required by 49 CFR 172.203(d)(3). The physical form of the material was listed but the chemical form was not.

- (2) Documentation of shipment did not indicate that the radiation level present on the external surface of the package offered for transport was below the acceptable levels indicated in 49 CFR 173.441. The survey form accompanying the shipping papers had a space to list the radiation level noted at contact with the shipping container but the space was left blank. The survey form also had a space to list the radiation level noted at one meter from the shipping container and that space indicated a radiation level of 1.5 millirem per hour.
- (3) The shipping papers for the shipment did not list the proper TI of the radioactive material being shipped as required by 49 CFR 172.203(d)(6). As noted above, the survey form for the shipment had a space to list the radiation level noted at one meter from the shipping container. The one meter reading was listed as of 1.5 millirem per hour. This number, 1.5, should have been listed on the shipping papers as the TI but the TI on the shipping papers was listed as 1.8.
- (4) The shipping papers for the shipment indicated that a Yellow II label had been used for the shipment instead of a Yellow III label. The Yellow III label would have been the correct label according to the TI listed on the shipping papers, as required by 49 CFR 172.403.

The licensee was informed that failure to include the required information on the shipping papers for the shipment of radioactive material made on February 25, 2003 was an apparent violation (VIO) of 10 CFR 71.5(a) (VIO 50-326/2004-201-02).

c. Conclusions

One violation was identified for failure to comply with the requirements on 10 CFR 71.5(a) regarding shipments of radioactive material.

## **7. Follow-up on Previously Identified Issues**

a. Inspection Scope

The inspectors reviewed the actions taken by the licensee following identification of a violation (VIO) during an inspection in September 2002, and documented in NRC Inspection Report No. 50-326/2002-201-01, dated October 1, 2002.

b. Observations and Findings

VIO - 50-326/2002-201-01 - Failure to include the required information and/or signatures on the shipping papers, failure to demonstrate that certain packages were in compliance with the radiation and contamination levels required for shipment, and failure to label one shipment correctly as required.

During the inspection in September 2002, various documents prepared in support of shipments made during 2001 through the date of the inspection were reviewed. It was noted that many of the shipping papers and some of the supporting documentation lacked necessary and required items of information as required by 49 CFR Parts 171 through 177. Other problems were noted as well. The problems noted with the shipping



papers and/or the supporting documentation included: (1) failure to list the chemical and physical form of the radioactive material, (2) failure to list the major isotopes and the total activity present in the packages of radioactive material being shipped, (3) failure to indicate that the shipping packages complied with the requirements for external radiation and contamination levels, (4) failure to note the Transport Index (TI) for certain shipments, (5) failure to sign the shipping papers and certification, (6) failure to list an Emergency Telephone number on the shipping papers, and (7) placing the wrong label on a shipment.

During this inspection the inspectors verified that many of the problems noted had been corrected. However, as documented in the previous section, Section 6, of this report, one set of shipping papers was found to have various deficiencies. Because progress had been made in resolving this problem, this issue is considered closed. As noted above, another violation was cited for the more recent problems.

c. Conclusions

One violation identified during an inspection in September 2002 was closed.

**8. Exit Interview**

The inspection scope and results were summarized on November 18, 2004, with members of licensee management. The inspectors described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Licensee

G. Miller	Reactor Supervisor and Senior Reactor Operator
P. Rogers	Associate Reactor Supervisory and Senior Reactor Operator
J. Stern	Dean, Physical Sciences
K. Wolonsky	Associate Dean, Physical Sciences
D. Trinh	Laboratory Assistant and Reactor Operator Trainee

### Other Personnel

D. Hamano	Radiation Safety Officer, UCI EH&S
K. Harkness	Health Physicist, UCI EH&S
R. Mannix	Senior Health Physicist, UCI EH&S
W. Robinson, Jr.	Chair, Radiation Safety Committee, UCI

## **INSPECTION PROCEDURES USED**

IP 69001	Class II Research and Test Reactors
IP 86740	Inspection of Transportation Activities

## **ITEMS OPENED, CLOSED, AND DISCUSSED**

### Opened

50-326/2004-201-01	IFI	Follow-up on the licensee actions to modify SOP No. 5 such that extraneous requirements are removed concerning triennial water analyses and weekly radiological supply inventories.
50-326/2004-201-02	VIO	Failure to include the required information on the shipping papers and failure to properly classify a shipment of radioactive material.

### Closed

50-326/2002-201-01	VIO	Failure to include the required information and/or signatures on the shipping papers, failure to demonstrate that certain packages were in compliance with the radiation and contamination levels required for shipment, and failure to label one shipment correctly as required.
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## **PARTIAL LIST OF ACRONYMS USED**

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
EH&S	(Office of) Environmental Health and Safety
HP	Health Physics

IFI	Inspector Follow-up Item
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
NRF	Nuclear Reactor Facility
ROC	Reactor Operations Committee
RSO	Radiation Safety Officer
SOP	Standard Operating Procedure
SRO	Senior Reactor Operator
TI	Transport Index
TS	Technical Specifications
UCI	University of California, Irvine
UCI NRF	University of California, Irvine Nuclear Reactor Facility
VIO	Violation