

Yale University

OFFICE OF THE PROVOST
New Haven, Connecticut 06520

November 5, 2008

Br. 2

Mr. Bryan Parker
USNRC Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Re: RSO Amendment Request
License No. 06-00183-06
License No. 06-00183-03
License No. SNM-52

03006886
03000582
07000053

Dear Mr. Parker:

I am writing to formally request your review and approval of the attached documentation to amend the above referenced licenses to appoint Tammy J. Stemen as Yale University's Radiation Safety Officer.

The following information is provided in accordance with NRC procedures:

- 1) Name of RSO: Tammy J. Stemen, CHP
- 2) Description (enclosed) of Ms. Stemen's training and experience, demonstrating her qualifications to perform the duties required under our NRC licenses;
- 3) A position description (enclosed), which delineates the duties and responsibilities of Yale University's RSO; and
- 4) A Radiation Safety Officer Delegation of Authority letter (enclosed) signed by Peter Salovey, Yale University's Provost.

If you have any question on this matter, please call Ms. Stemen at 203.737.2140

Sincerely,



Stephanie S. Spangler, M.D.
Deputy Provost for Biomedical and Health Affairs

Enclosures

Cc: Dr. William Summers, Chair, Yale University Radiation Safety Committee
Dr. Edward Wilds, State of CT Department of Environmental Protection

RECEIVED
REGION 1
2008 NOV 24 PM 1:40

143041/143042/143043
NOV 20 2008 11:00 AM

Tammy J. Stemen, CHP

Training and experience pertinent to the responsibilities, skills and knowledge for Yale University Radiation Safety Officer Position

CERTIFICATIONS

**American Board of Health Physics
Comprehensive Certification in Health Physics**

Awarded November 1998
Renewed January 2003
Renewed January 2008

EDUCATION

Purdue University
Bachelor of Science in Environmental Health
Major: Health Physics

West Lafayette, Indiana
May 1987

RADIATION SAFETY WORK EXPERIENCE

**Yale University - Office of Environmental Health and Safety (OEHS)
*Assistant Radiation Safety Officer***

New Haven, Connecticut
November 1998 to Present

- Reporting directly to Radiation Safety Officer, provide direct program management of Yale's radiation safety Training, Radioisotope Use Authorization, Hazard Evaluation and Radioisotope Purchasing programs.
- Calculating and reviewing dosimetry results and conducting hazard evaluations/ALARA investigations aimed at effectively reducing/preventing whole body, skin and extremity doses.
- Serving on the Yale-New Haven Hospital Radiation Safety Committee and acting as a liaison between the university and hospital radiation safety programs.
- Working directly with Connecticut DEP and federal NRC inspectors during visits, audits, inspections, reports of incidents, license submissions and registrations.
- Coordinating Radiation Safety Committee meetings, including developing agendas, documenting minutes and coordinating all follow up responsibilities.
- Working closely with the Environmental Affairs Section of OEHS to improve communications between OEHS and laboratory staff on radioactive waste handling protocols and minimization of radioactive wastes.
- Providing operational oversight of the daily radioactive package receipt and delivery program.
- Coordinating new x-ray unit installations and registrations, and developing their safe use protocols.
- Acting as a primary liaison with the Yale Animal Resources Center (YARC) for all issues pertaining to use of radioactive materials in animals
- Serving as a primary member of the OEHS 24-Hour Emergency Response team.
- Developing the Guilford Nuclear Cardiology Clinic and Yale PET Center radiation safety programs. Currently serving as a primary health physics contact for these specialized groups.

**Yale University - Office of University Safety
*Senior Health Physicist***

New Haven, Connecticut
March 1990 to November 1998

- Supervised the Training, Hazard Evaluation, Radioisotope Use Authorization and Isotope Purchasing programs. Direct reports included one Health Physicist and two Administrative Assistants.
- Developed a variety of educational programs designed to instruct scientific personnel in the proper handling of radioactive materials.
- Conducted numerous and varied radiation safety seminars to all levels of administrative, scientific, technical, professional, ancillary and non-technical personnel within the university.
- Restructured and administered the Radioisotope Use Authorization Program. Included reviews, interviews, inspections and formal reports to the Radiation Safety Committee.

- Worked directly with principal research investigators to construct and maintain safe radioactive material use facilities within research laboratories.
- Supervised and monitored various experiments conducted by laboratory personnel involving the use of radioisotopes to evaluate, ensure and improve the safety of these experiments.
- Served as a member of the Radiation Safety Subcommittee to review and approve investigator use of radioisotopes.
- Presented status reports and made recommendations to the University Radiation Safety Committee on current health physics issues.
- Performed dose calculations to assist in properly evaluating and analyzing personnel exposures to radiation.
- Responded to and resolved numerous emergency situations involving accidents with radioactive materials.
- Developed and maintained a program to effectively deal with the special concerns of pregnant women working in radioactive material use laboratories.
- Provided training and guidance to department health physics technicians with respect to instrument selection and calibration, laboratory contamination surveys, bioassays, emergency response, decontamination techniques, and various other radiation safety issues.

Hybritech Incorporated
Health Physicist/Assistant to Radiation Safety Officer

San Diego, California
 August 1987 to February 1990

As the principal Health Physicist for a multi-facility biotechnology company where curies of Yttrium-90 and Indium-111 were used on a weekly basis, I was responsible for the daily operation of an extensive and varied health physics program. In an effort to maintain a State of California Broadscope license, I:

- Administered the Hybritech dosimetry and ALARA programs and investigated and analyzed employee exposures which exceeded ALARA limits.
- Trained all employees in appropriate radiation safety practices and procedures. This instruction program included the training and testing of all new employees, authorized users of radioactive materials, annual retraining of all users, and specialized instruction to high level users.
- Performed audits of Radioactive Material Use Authorizations to ensure compliance with written procedures and license requirements.
- Served as a member of the Radiation Safety Committee. Presented status reports to the committee on current issues and provided health physics recommendations.
- Monitored the safe operation of a production iodination facility, including significant air sampling and thyroid bioassay programs.
- Directed work activities and approved completed assignments of health physics technicians and student health and safety interns.
- Reviewed laboratory contamination surveys and providing any necessary follow-up.
- Managed the radioactive waste decay and disposal program.
- Participated as a member of the Hybritech Emergency Response Team.

Purdue University - Radiological Control Office
Health Physics Intern

West Lafayette, Indiana
 August 1986 to December 1986

Gained applied work experience as a health physics assistant by being involved in all areas of the university's radiation safety program.

- Conducted radiation safety surveys.
- Participated in collection and disposal of radioactive wastes.
- Performed instrument calibrations.
- Monitored incoming shipments of radioisotopes.
- Collected and analyzed bioassay data.
- Assisted in health physics oversight activities at the university's research reactor.

TMA Eberline
Health Physics Technician

Albuquerque, New Mexico
June 1986 to August 1986

- Prepared a radiological environmental assessment of an inactive uranium reprocessing mill.
- Performed numerous calculations pertaining to the assessment.
- Gained insight into government regulations and procedures.

SPECIAL RADIATION SAFETY TRAINING

- | | |
|--|----------------|
| - Cyclotron/PET Safety Training
GE Medical Systems | February 2006 |
| - Basics of Lasers and Optics
Rockwell Laser Industries | October 2002 |
| - Advanced Radiation Safety Officer
CSI - Radiation Safety Academy | March 2001 |
| - Applied Health Physics , five week intensive HP course
Oak Ridge Associated Universities | April 1996 |
| - Operation of Mark I-68A Shepherd Irradiator
J.L. Shepherd and Associates | September 1991 |
| - Safe Use of Radionuclides
Oak Ridge Associated Universities | December 1990 |

**Yale University
Office of Environmental Health and Safety**

Yale Position Title: Manager 6 (MP 28)
OEHS Working Position Title: Radiation Safety Officer
Version Date: 7 January 2007 Printed: 14 November 2008

General Purpose

This is a key position in Yale University's Office of Environmental Health and Safety, responsible for management of its Radiation Safety Section. This person will plan, implement and improve the University's radiation safety compliance program. Advanced knowledge and skills in radiological science, medical and health physics, laboratory research, health and safety hazards, and nuclear and environmental regulation is required. Excellent writing skills are essential to prepare required plans, compliance documents, safety guidance and regulatory communications. Excellent oral communication and presentation skills are needed to meet the position's objectives of risk communication, safety training and positive working relations with regulatory agencies. This position needs to maintain a professional, service-oriented relationship with customers, and possess excellent interpersonal skills. This position needs to build, support and be part of work teams in our multi-disciplinary and highly collaborative office. Also important are managerial and supervisory skills for program planning, prioritization, resource allocation, creative problem-solving, delegation of responsibilities and process improvement.

Essential Duties of Position

Position Objective: Compliance with Federal and State Standards for Radiation Safety

Serve as Radiation Safety Officer for all University radiation protection licenses, including registration of x-ray producing equipment and other radiological imaging systems. Represent the University in regulatory matters, including licensing, reporting, inspections and other communications. Review training programs, equipment, facilities and procedures to ensure that NRC licensed material and other sources of radiation are secure and used safely. Serve as the University's technical expert on radiation related issues.

Evaluate federal, state, and local regulations. Plan, implement and review a radiation safety compliance program to meet University needs and expectations of the Nuclear Regulatory Commission and other regulatory agencies.

Maintain compliance to ensure continued access of all authorized users to radioactive materials and radiation-producing equipment. When possible, anticipate and prevent problems. Mitigate and resolve hazards, other problems and items of non-compliance.

Document compliance. As necessary, prepare license applications, amendments, compliance reports and other regulatory communications.

Lead a comprehensive radiation safety program through planning and supervision of radiological surveys, leak testing of sealed sources, surveys of x-ray machines and other radiation producing devices, consultation with authorized users and pregnant workers, training, meter calibration, facility security and the implementation of security procedures. Prepare the Radiation Safety Program annual report.

Manage Yale's ALARA program, including review of dosimetry and other personnel monitoring, taking appropriate action to minimize and prevent exposures, and preparing ALARA reports. Specify dosimetry vendor requirements and monitor vendor performance.

Schedule, plan, organize and facilitate effective meetings of the University Radiation Safety Committee (RSC). Work through the RSC to identify risks, resolve compliance problems and take corrective actions. Facilitate the effective use of subcommittees for special issues. Keep the RSC Chair informed of all significant regulatory and programmatic developments. Maintain minutes.

Monitor developments and trends in regulatory requirements, advisory agency guidelines, and best practices, and advise OEHS staff, other departments and University leadership about their potential impact on University operations. Design and implement new programs as required.

Position Objective: Maintenance of a Comprehensive University Radiation Safety Program

Plan, organize and direct a comprehensive radiation safety program to meet University needs support its research and teaching. Assess radiation safety risks that pertain to radioactive material and radiation-producing devices. Incorporate suggestions from authorized users and radiation workers. Set Section priorities and goals. Make strategic plans to meet Section and Office goals.

Review training programs, equipment, facilities and procedures to ensure that NRC licensed material and other sources of radiation are secure and used safely.

Track key radiation safety indicators. Prepare quarterly performance, activity, progress and accomplishment reports for OEHS' quarterly and annual reports.

Lead by communicating OEHS' mission, vision and values, taking responsibility for your Section's performance, creating responsibility for others, as well as through your contributions and exemplary reliability.

Develop and implement policies and procedures to meet program responsibilities as well as Section and Office goals.

Plan and supervise the addition and removal of facilities for using radioactive material and radiation-producing devices. Review plans and advise on shielding, security and safe construction. Prepare, review and supervise plans for decontamination and decommissioning radiation areas.

Take initiative to solve radiation safety problems, and make creative improvements.

Provide excellent radiation safety services to students, faculty, staff, visitors and other stakeholders. Excellent service is prompt, friendly, convenient, high quality and anticipates needs. Promote radiation safety through consultation, training, campus outreach and other services.

Plan, implement and review the research and clinical laser safety program. Address safety and health issues of other non-ionizing radiation activities, as necessary.

Support, advise and work collaboratively with the Environmental Services Section to manage low-level and mixed waste. Establish waste management procedures and conduct periodic waste audits to ensure compliance and safety.

Emergency Planning and Preparedness: Plan, prepare for, and prevent emergencies involving radiation and radioactive material, including security incidents. Collaborate in all-hazard campus emergency planning. Review procedures and evaluate responses. Assign Radiation Safety Section staff to the OEHS Emergency Response Team. Facilitate training and exercises for radiation emergency responders.

Work collaboratively with the co-managers of the Safety Advisor program to ensure that it meets the oversight needs of the University's radiation safety compliance program, including inspections, contamination monitoring and compliance with exposure limits. Provide feedback to authorized users and radiation workers regarding their compliance status. Assist with Safety Advisor development.

Position Objective: Effective Management Radiation Safety Section Resources

Manage the Radiation Safety Section staff through effective recruitment, hiring, training, work planning, motivation, making assignments, delegation, coaching, supervision, performance review, retention and, as necessary, discipline.

Promote staff continuing education and development. Encourage and support professional and personal development of staff by the annual drafting of a personal development plan with each employee. Identify and provide opportunities for professional enrichment and advancement of staff.

Delegate, assign and schedule staff responsibilities to meet Section responsibilities.

Effectively communicate with Section and Office staff. Manage confidential and sensitive information appropriately.

Promote teamwork, cooperation, communication, organizational integration, helping others, task flexibility, cross training, inclusiveness and program integration within your Section, with other OEHS staff, and with other university support staff.

Build, advance and maintain effective OEHS working relationships with key partners, customers and stakeholders—both on and off campus.

Appropriately manage information. Maintain and develop records, data and information systems.

Evaluate and acquire new technologies, equipment, and services with potential to reduce radiation safety risks, improve operational efficiency, or streamline customer service.

Anticipated needs and report them to the Director. Allocate new resources effectively. Be a prudent steward of financial, human and other resources.

Promote environmental health and safety standards in all operations. Ensure that all of your employees receive appropriate and required safety training and occupational health exams; work with your employees to assess risks and prevent accidents; utilize appropriate safety procedures, personal protective equipment and other safety controls.

Position Objective: Collaboration, Assistance and Participation in the Management of the Office of Environment, Health and Safety

Advise and participate in Office strategic planning and goal setting. Develop Section goals and individual work plans that synergize and are supportive of the Office.

Keep the OEHS Director informed of important campus, regulatory, media and University leadership concerns. Frequently report to the Director on Section activities, progress and problems, both verbally and in writing. Meet as scheduled to report your progress in completing assignments and work plans, meeting Section goals, as well as to update strategic plans.

Provide frequent, complete, timely and appropriate communications to University leadership, subordinates, peers and key university support staff, including verbal and written updates. Provide and receive feedback appropriately.

Use good judgment to appropriately seek approval and respect reporting relationships.

Emergency Response: As a member of the OEHS Emergency Response Team, respond appropriately to all types of emergencies. As scheduled, carry the after-hours hot pager. Supervise radiological emergency response so that OEHS responds appropriately. Provide 24-hour on-call support. Report spills, exposures, releases and security breaches as required. Facilitate the continuity and recovery of Yale and OEHS operations.

Assist the Director and other Office managers as necessary in order to meet Office goals.

Position Objective: Other Environmental Health and Safety Responsibilities

Know, implement and comply with University and OEHS policy and procedures.

Perform other duties as requested by the Director, Deputy Provost or other campus administrators. Complete other assigned duties so that they are of high quality, accurate and on time.

Take corrective action to reduce risks identified by you, your staff and OEHS inspections.

Immediately report to the Director: a) items of non-compliance, or potential items of non-compliance; b) any spills, releases, accidents, injuries, emergencies or other incidents; or c) any problems with facilities and equipment.

Continue to develop professionally.

Education and Experience

Ten years or more of progressively responsible health physics experience in a radiation safety program at a research university.

Master's or doctorate degree in health physics, radiological health or other functionally-relevant field. Alternatively, a bachelor's degree in health physics, radiological health or other functionally-relevant field and comprehensive certification by the American Board of Health Physics.

Comprehensive certification by the American Board of Health Physics is highly preferred.

Advanced knowledge radiation, radioactive materials and radiation-producing devices.

Advanced knowledge of occupational and public health risks of radiation, including principles of health physics, standards and variables of exposure. Ability to understand, interpret and convey exposure, measurement and dosimetry information.

Advanced knowledge of the practice of radiological hygiene, including workplace monitoring, analysis, sampling, shielding, and the selection and use of personal protective equipment and administrative, engineering and work practice controls.

Knowledge of medical health physics.

Broad knowledge of local, state and federal radiation safety laws, interpretations and advisory guidelines, and university license conditions pertaining to radiation safety.

Advanced knowledge of laboratory science, operations and objectives, including chemical, biological and physical processes, procedures, techniques and instrumentation commonly used in research, teaching and clinical laboratories.

Knowledge of emergency planning, preparedness and response, including risk assessment, contingency analysis and incident command.

Advanced knowledge of environmental science principles and environmental impacts of radioactive material use, including air emissions.

Advance knowledge of radioactive waste management principles, including proper waste handling, storage and disposal methods.

Skills and Abilities

Leadership, vision, creativity and management skills to effectively solve problems, craft safety programs and motivate staff.

Capable of working both independently and collaboratively, as a member of the senior management team.

Ability to facilitate effective operational integration, collaboration and teamwork within OEHS and Yale.

Ability to prioritize and effectively manage multiple tasks simultaneously. Exercise good judgment in managing time.

Ability to establish and maintain professional, collaborative, service-oriented, cooperative and effective working relationships with students, faculty, staff, unions, customers, the public, regulatory agencies and co-workers through effective and positive communication.

Ability to use health physics equipment and information technologies, including advanced database, spreadsheet and word processing editing features.

Advanced written communication skills, including the ability to write clearly and actively on complex topics. Ability to edit for clarity, content and technical content. Ability to simplify guidance for students and staff, and to prepare thoroughly documented technical/legal writing.

Advanced oral communication and presentation skills, including the abilities to communicate risks effectively, prepare professional-quality presentations, speak clearly and engagingly about complex issues before small and large groups, and negotiate compliance issues with regulatory authorities.

Advanced skill in using and applying the above knowledges, including using measurement devices and calculating exposures. Ability to understand, interpret and convey exposure and measurement.

Active membership in relevant professional organizations, working to disseminate specialized information and knowledge developed or acquired during the course of work at the University to broader audiences through talks, seminars, presentations, and/or publications.

Possess/complete and maintain HAZWOPER certification.

Stand, walk, and negotiate occasional awkward work locations and paths of travel.

Work in a variety of physical environments, including weather/temperature extremes, potential confined spaces, elevated locations, etc.

Periodically perform short duration physical exertions, including light-medium weight lifting, pushing/pulling, stair or ladder climbing, etc. in support of a safety investigation, area or operations survey, or emergency response.

YALE UNIVERSITY
P.O. BOX 208365
NEW HAVEN CONNECTICUT 06520-8365
(203) 432-4444

THE PROVOST
November 5, 2008

Re: **Delegation of Authority for Radiation Safety Officer**
License 06-00183-06
License 06-00183-03
License SNM-52

Mr. Bryan Parker
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Dear Mr. Parker,

In accordance with NRC procedures, this letter is to confirm the appointment of Tammy J. Stemen as Yale University's Radiation Safety Officer (RSO) for the above-referenced licenses. As Yale's RSO, she is responsible for ensuring the safe use of byproduct material. More specifically, she is responsible for the management of the radiation safety program; identification of radiation safety problems; recommendation and initiation of corrective actions; oversight and verification of the implementation of corrective actions; and assurance of compliance with regulations for the use of byproduct material.

The University has delegated to the Radiation Safety Officer the authority necessary to exercise the responsibilities of the position. More specifically, the RSO is authorized to immediately stop any operations involving the use of byproduct material in which health and safety may be compromised or that may result in non-compliance with NRC requirements.

This letter accompanies our license amendment request to affect this delegation.

Please let me know if you have any questions.

Sincerely,



Peter Salovey, Provost
Chris Argyris Professor of Psychology

Enclosure

Cc: Dr. Stephanie S. Spangler, Deputy Provost for Biomedical and Health Affairs
Dr. William Summers, Chair, Yale Radiation Safety Committee
Peter Reinhardt, Director, Office of Environmental Health & Safety

This is to acknowledge the receipt of your letter/application dated

11/5/08, and to inform you that the initial processing which includes an administrative review has been performed.

Amendments (06-00183-06/06-00183-03/SPM-52)
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 14304.1/14304.2/14304.3
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.