

# Idaho State UNIVERSITY

Office of Research  
921 South 8th Avenue, Stop 8130 • Pocatello, Idaho 83209-8130

May 5, 2011

Michelle M. Hammond, MSc  
Health Physicist  
U.S. Nuclear Regulatory Commission, R-IV  
Division of Nuclear Materials Safety, Branch A  
Office: 817-860-8127  
Fax: 817-860-8188  
[Michelle.Hammond@nrc.gov](mailto:Michelle.Hammond@nrc.gov)

Dear Ms. Hammond:

I am writing to request an amendment to the Idaho State University (ISU) broad scope NRC license No. 11-27380-01 to accommodate a new institutional Radiation Safety Officer (RSO).

Proposed RSO name: Jay Kunze, Ph.D., PE, CHP

Proposed RSO training and experience (also see attached CV):

1956 - 1958 - PhD Dissertation work involved radioactivity around a 440 MeV cyclotron, experiments with meson beam entering a cloud chamber

1959 - 1972 - Conducting critical experiment mockups, within two experimental cells, using mostly highly enriched uranium sheets (120 kg of 93% U-235 in sheet form, that had to be stored safely and securely). Was director of these operations from 1962 to 1972. Trained reactor operators. (At National Reactor Testing Station, now Idaho National Laboratory.)

1972 - 1975 - Managed three critical experiment reactors that served the ATR and the Engineering Test Reactor. (Idaho National Laboratory)

1983 - 1995 - Directed the nuclear engineering program at University of Missouri. Supervised student use of sources for research, and the use of a natural uranium subcritical experiment facility. (University of Missouri)

1987 to 1995 - Chair of the Reactor Safety Committee, University of Missouri

1992 - Passed AAHP Health Physics Certification Exam. Have maintained CHP certification ever since.

1992 - 1994 - Worked part summers at Idaho State University on boron neutron capture therapy irradiations using Van de Graff generators, and 2 MeV Cockroft Walton generators.

1995 - As Dean of engineering, became the Reactor Administrator at Idaho State University, and have served in that position up to the present time. Responsible for the R-110 license and the SNM 1373 license from NRC. Ex-officio director of the Reactor Safety Committee

2006 to present - served on the ISU Radiation Safety Committee, as Chair for the last 6 months.

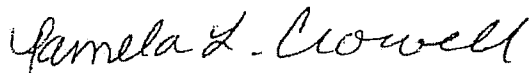
RSO duties and responsibilities:

- Preliminary review of proposed new uses and users, prior to formal discussion by the Radiation Safety Committee
- Performing audits of all areas of use and individuals who are authorized to use byproduct material to ensure work is done in accordance with the license, regulations, and user permit conditions
- Monitoring and surveys of all areas in which radioactive material is used
- Oversight of ordering, receipt, surveys, and delivery of byproduct material
- Packaging, labeling, surveys, etc., of all shipments of byproduct material leaving the institution
- Personnel monitoring program, including determining the need for and evaluating bioassays, monitoring personnel exposure records, and developing corrective actions for those exposures approaching maximum permissible limits
- Training of all personnel
- Waste disposal program
- Inventory and leak tests of sealed sources
- Decontamination
- Investigating any incidents and responding to any emergencies
- Maintaining all required records

A signed Radiation Safety Officer Delegation of Authority memo is attached.

Please contact me if you have any questions or require additional information.

Sincerely,



Pamela L. Crowell, Ph.D.  
Vice President for Research and Economic Development  
[crowpame@isu.edu](mailto:crowpame@isu.edu)

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## DELEGATION OF AUTHORITY RADIATION SAFETY OFFICER

May 5, 2011

**To:** ISU faculty and staff

**From:** Pamela L. Crowell, Ph.D. *Pamela L. Crowell*  
Vice President for Research and Economic Development

**Subject:** Delegation of Authority for Radiation Safety Officer

I have appointed Dr. Jay Kunze, Professor and Chair of Nuclear Engineering, as the Idaho State University Radiation Safety Officer (RSO) effective April 29, 2011. The RSO is responsible for ensuring the safe use of radioactive byproduct material. Specifically, the RSO is responsible for managing the radiation safety program; identifying radiation safety problems; initiating, recommending, or providing corrective actions; verifying implementation of corrective actions; and ensuring compliance with all regulations for the use of byproduct material. As Radiation Safety Officer, Dr. Kunze is hereby delegated the authority necessary to meet these responsibilities.

The Radiation Safety Officer has the authority to immediately stop any operations involving the use of byproduct material in which human health and safety may be compromised or may result in non-compliance with U.S. Nuclear Regulatory Commission requirements.

cc: Arthur C. Vailas, President  
Brad Hall, General Counsel

## Brief Resume' (May 2011)

Jay F. Kunze

### Home:

**Business: Prof. and Chair of Nuclear Engr. and Health Physics, Reactor Administrator**  
School of Engineering, Idaho State University  
PO Box 8060, Pocatello, ID 83209  
208-292-4147 (W)  
kunzejay@isu.edu

**Licensed Professional Engineer (ME) in ID and MO**

**Certified Health Physicist (national certification, since 1992)**

### EDUCATION:

BS, MS, and PhD degrees in physics, with emphasis in engineering physics and mechanical engineering (BS level), and nuclear physics (PhD level), from Carnegie Institute of Technology (now Carnegie-Mellon University), Pittsburgh, PA.

### CURRENT POSITION (since July 2010):

Professor and Chair of Nuclear Engineering and Health Physics, School of Engineering  
Idaho State University.

PRIOR POSITION: (July 1995 to June 2006) - Dean (and Professor) of Engineering, Idaho State University, Pocatello, ID. Chief administrator for college of 600 students, of which 15% are graduate students working toward MS or PhD. Also Associate Director of Idaho Accelerator Center, and the Nuclear Reactor Administrator. Also Reactor Administrator 1995 to present. (Retired from the dean and associate director positions in June, 2006)

### PREVIOUS EXPERIENCE:

- 1959-1962 - Nuclear Engineer, General Electric Co., Idaho Test Station, Aircraft Nuclear Propulsion Program.
- 1962-1969 - Project Manager, General Electric Space Nuclear Propulsion projects - Nuclear analysis of power reactor testing, director of two-reactor critical experiment facilities - project work for USAF & NASA.
- 1969-1970 - Director of Nuclear Engineering Program and Visiting Assoc. Prof., University of Utah.
- 1970-1975 - Manager of Reactor Technology, including reactor physics group, and four critical experiment facilities at the Test Reactor Area at Idaho National Engineering Laboratory (now INEEL).
- 1975-1978 - Manager of Geothermal and Alternative Fuel Projects and of Energy Conservation Projects at the Idaho National Engineering Laboratory. Major geothermal projects were at Raft River (electricity production and beneficial uses of waste heat), and space heating project in Boise, ID.
- 1978-1983 - President, Energy Services, Inc. of Idaho Falls. Directed geothermal energy development projects in a number of western states, and energy conservation and alternative energy projects (fuel alcohol production).
- 1983-1993 Chairman and Robert Lee Tatum Professor of Nuclear Engineering Program at the University of Missouri-Columbia. Chairman of Reactor Safety Committee, for 10 MW research reactor.
- 1993-1995 - Director of Health and Medical Physics Options in the Nuclear Engineering graduate program, University of Missouri-Columbia. Taught undergraduate engineering course in Energy Systems.
- 1984-1995 - Consulting service as member of Nuclear Safety Review Board and Corporate Radiation Safety Committee for the Callaway Nuclear Power Plant at Fulton, Missouri.
- 1998-2004 - Consulting service to the US Department of Energy through the Idaho National Engineering Laboratory on Dry Fuel Reprocessing, Spent Nuclear Fuel Shipping, and R&D for Decontamination and Decommissioning.
- 1997-2003 - External Review Committee for the Technology Development Division of Argonne National Lab

### PROFESSIONAL SOCIETY ACTIVITIES:

- Fellow of **American Nuclear Society (ANS)** since 1979, member since 1959.
  - ANS - Chaired two local sections , Idaho and Missouri
  - ANS - Chaired two Divisions: Reactor Physics and Alternative Energies
  - ANS, served on Board of directors (3 years, 1978-1981) and various committees since then.
- Fellow of **American Society of Mechanical Engineers (ASME)** since 2000, member since 1984

ASME - Chair of the Executive Committee for the Nuclear Engineering Division, 2007-2008.  
Member of Executive committee since 2002.

ASME - former Chair, V. Chair, and Secretary of the Advanced Reactors Committee  
Track Leader for "Next Generation Systems," for 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup>, 14<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup>.  
International Conferences on Nuclear Engineering, 1996, 1997, 1998, 2002, 2004, 2006, 2008

• Member of ASHRAE - Am. Society for Heating, Refrigeration, and Air Conditioning Engineers

• Member Health Physics Society (since 1984) (member of continued professional competence committee.),

- Member of National Society of Professional Engineers (NSPE) (former local section chair), and currently chair of state subcommittee on Continued Professional Development
- Nuclear Engineering Department Heads Organization - member until 2003, for ~20 years, chaired the national organization in 1993-94.

**HONORS:** Tau Beta Pi (Pennsylvania Gamma, elected in as a junior 1953)

Phi Kappa Phi (since 1954)

Member of Sigma Xi (since 1957)

Elected a Fellow of the American Nuclear Society (1979) and

Elected a Fellow in American Society of Mechanical Engineers (1999)

**PUBLICATIONS:**) - for period 2005 to August 2010 - complete listing of publications available on request)

**CHAPTER IN HANDBOOK:**

Jay F. Kunze, Economics of Nuclear Power, Chapter 22 of "Nuclear Engineering Handbook," CRC Press, 2009

**PROCEEDINGS (peer reviewed) & TRANSACTIONS of ANS:** (\* indicates those for which Kunze was principal author or presenter):

Kellen Giraud, Jay F. Kunze, James Mahar, and Wes Myers - "Below the Horizon," *Mechanical Engineering, Dec. 2010*, pages 30 to 34

Kellen Giraud, Jay F. Kunze, James M. Mahar, ""Cost Advantages of Large Underground Nuclear Parks," *Proceedings of 17<sup>th</sup> International Conference on Nuclear Engineering*, Paper 75750, July 2009, Brussels, Belgium

\*Jay F. Kunze, James A. Mahar, and Wes Myers, "Underground Nuclear Power Parks - Power Plant Design Implications," *Proceedings of 16<sup>th</sup> International Conference on Nuclear Engineering*, Paper 48889, May 2008, Orlando, FL

Vern Rogers, Gary Sandquist, and Jay Kunze, "Comparison of Wind and Nuclear Power Economics," *Proceedings of 16<sup>th</sup> International Conference on Nuclear Engineering*, Paper 48189, May 2008, Orlando, FL

Gary Sandquist, Jay Kunze, and Vern Rogers, "Oil Recovery from Shale with Nuclear-Generated Heat," *Proceedings of 16<sup>th</sup> International Conference on Nuclear Engineering*, Paper 48188, May 2008, Orlando, FL

Jay F. Kunze and Gary M. Sandquist, "Nuclear Waste and Other Hazardous Materials in the Biosphere," *Proceedings of the ANS Global 2007 Meeting*, Boise, ID, September 2007

\*Jay F. Kunze, James M. Mahar, and C. Wes Myers, "Advantages of Co-located Spent Fuel Repository and Underground Reactor Facilities," *Proceedings of the ANS Global 2007 Meeting*, Boise, ID, September 2007

\*Jay F. Kunze, Gary M. Sandquist, and David Pardos, "Is Nuclear Power the Key to Clean Coal Gasification," Paper 89743 in *Proceedings of the 14<sup>th</sup> International Conference on Nuclear Engineering*, July 2006, Miami, FL.

Wes Myers, Ned Elkins, \*Jay Kunze, and James Mahar, ""Potential Advantages of Underground Nuclear Parks," Paper 89133 in *Proceedings of the 14<sup>th</sup> International Conference on Nuclear Engineering*, July 2006, Miami, FL

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Jeff W. Eerkens, \*Jay F. Kunze, and Leonard J. Bond, "Laser Isotope enrichment for Medical and Industrial Applications,"  
Paper #89767 in *Proceedings of the 14<sup>th</sup> International Conference on Nuclear Engineering*, July 2006, Miami, FL

\*Jay F. Kunze, James Mahar, Wes Myers, and Ned Elkins, "DD&R Issues if Nuclear Plants Are Sited Underground,"  
*Transactions of the ANS, June 2006*, Reno, NV.

HaiJo Jung, Jay F. Kunze, and James Nurrenbern, "The Consistency and The Efficiency of Standard  
Swipe Procedures Taken on Slightly Radioactive Metal Surfaces," *Operational Radiation  
Safety*, May 2001, p. S80-88

# Hill, Carol

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**From:** Hammond, Michelle  
**Sent:** Friday, May 06, 2011 8:40 AM  
**To:** Torres, RobertoJ; Hill, Carol; Roldan, Lizette  
**Subject:** FW: FW: Re: Proposed RSO  
**Attachments:** NRC letter.pdf

Sorry, I had to log into Citrix to make sure the attachment went through.  
-M

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**From:** Pamela Crowell [<mailto:crowpame@isu.edu>]  
**Sent:** Thursday, May 05, 2011 2:53 PM  
**To:** Hammond, Michelle  
**Cc:** Roldan, Lizette  
**Subject:** Re: FW: Re: Proposed RSO

Michelle,

Thank you for the phone call and note. The attached document is an amendment request to add Dr. Jay Kunze as Idaho State University's Radiation Safety Officer.

Please contact me if you need any other information, and thank you for your guidance on this matter.

Pam

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Pamela L. Crowell, Ph.D.  
Vice President for Research and Economic Development  
Idaho State University  
921 S. 8th Ave., Stop 8130  
Pocatello, ID 83209  
(208) 282-3134  
[crowpame@isu.edu](mailto:crowpame@isu.edu)

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On Thu, May 5, 2011 at 9:28 AM, Hammond, Michelle <[Michelle.Hammond@nrc.gov](mailto:Michelle.Hammond@nrc.gov)> wrote:

Dr. Crowell,

Thanks for taking time to speak with me today regarding the proposed RSO required documentation.

As per our conversation, you will reference the e-mail below and submit documentation via e-mail (.pdf) regarding your proposal for a new Radiation Safety Officer as soon as possible.

Best Regards,

Michelle M. Hammond

*Michelle M. Hammond, MSc*

*Health Physicist*

*U.S. Nuclear Regulatory Commission, R-IV*

*Division of Nuclear Materials Safety, Branch A*

*office) 817-860-8127*

*fax) 817-860-8188*

*Michelle.Hammond@nrc.gov*

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**From:** Hammond, Michelle  
**Sent:** Thursday, April 28, 2011 3:50 PM  
**To:** 'crowpame@isu.edu'  
**Subject:** Re: Proposed RSO

Dr. Crowell,

Based on our conversation, here is the information you need to submit to propose a new RSO.

Please send a .pdf file to this e-mail with all required information.

NUREG-1556 : Program Specific Guidance about Licenses of Broad Scope:

Section 8.7.3 (pg 8-18)

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v11/sr1556v11.pdf>

Thanks.

*Best Regards,*



*Michelle M. Hammond, MSc*

*Health Physicist*

*U.S. Nuclear Regulatory Commission, R-IV*

*Division of Nuclear Materials Safety, Branch A*

*office) 817-860-8127*

*fax) 817-860-8188*

*[Michelle.Hammond@nrc.gov](mailto:Michelle.Hammond@nrc.gov)*

# Hill, Carol

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**From:** Hammond, Michelle  
**Sent:** Friday, May 06, 2011 8:29 AM  
**To:** Torres, RobertoJ; Roldan, Lizette  
**Cc:** Murnahan, Colleen; Hill, Carol  
**Subject:** FW: FW: Re: Proposed RSO

I realize that this is not all Idaho State University needs to submit, but I figured I should pass this along as soon as I got it.  
-Michelle Hammond

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**Cc:** Roldan, Lizette  
**Subject:** Re: FW: Re: Proposed RSO

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