**From:** Mohammad Saba
**To:** Sahag@ccf.org
**Date:** 9/20/05 10:24AM
**Subject:** Follow-up e-mail

Dr. Saha,

I have attached to this e-mail the summaries of our telephone conversation on September 8 and 15 of 2005.

If you have any questions or concerns, please contact me. Thank you.

Mohammad Saba

Telephone: 301-415-7608

**CC:** Cynthia Flannery

**Mail Envelope Properties** (43301BA8.D34 : 23 : 35244)

| | |
|---|---|
| **Subject:** | Follow-up e-mail |
| **Creation Date:** | 9/20/05 10:24AM |
| **From:** | Mohammad Saba |
| **Created By:** | MSS@nrc.gov |

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Dr. Gopal Saha:

This is a follow-up on our telephone conversation on September 8, 2005, in response to your August 12, 2005 letters in which you were seeking recognition of the American Board of Science in Nuclear Medicine's (ABSNM) certification processes by the U.S. Nuclear Regulatory Commission (NRC). There are several statements in the letters, which preclude recognition of ABSNM certification processes without further input from the board. The issues that require attention are listed and explained below.

1. Section A of the "Current Requirements" states that all the candidates shall hold a master's or doctor's degree in medical physics, pharmaceutical science, engineering, applied mathematics, pharmacy, biology, or other physical sciences or health physics from an accredited college or university. ABSNM needs to confirm that the degree requirements for their candidates seeking certification under the Radiation Protection Specialty must meet the requirements in 10 CFR 35.50(a)(2)(i).

2. Section B.3 (i) of the "Current Requirements" of ABSNM's application states, in part, that "training and/or supervised experience must be obtained "under the supervision of a radiation safety officer...." ABSNM needs to confirm that candidates seeking certification under the Radiation Protection Specialty must obtain their practical training and/or supervised experience in medical physics under the supervision/direction of an individual who meets the requirements in 10 CFR 35.50(a)(2)(ii)(A) or 35.50(a)(2)(ii)(B).

3. In accordance with 10 CFR 35.50(a)(2)(iii), ABSNM needs to confirm that the Radiation Protection Specialty certification examination also assesses knowledge and competence in "clinical diagnostic radiological or nuclear medicine physics."

Review of ABSNM's application for recognition will continue upon receipt of ABSNM's official reply to the issues needing attention that are listed and explained above.

Communications from the ABSNM associated with applying for recognition of its certification processes should continue to be addressed to:

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas H. Essig, Chief
Materials Safety and inspection Branch (MS T8F3)
1545 Rockville Pike
Rockville, MD 20852

For further information or for questions, please contact me at (301) 415-7608, mss@nrc.gov.

Mohammad Saba

Dr. Gopal Saha:

I am summarizing our teleconference on September 15, 2005, in response to your clarification e-mail on September 12, 2005. The NRC staff arranged a teleconference with you to discuss the ABSNM application for recognition process in detail. The participants of this meeting were Gopal Saha, PhD (ABSNM); Donna-Beth Howe, PhD; and Mohammad Saba.

The conclusions of the meeting are summarized as below:

- The Nuclear Physics and Instrumentation Specialty is more likely to obtain certification process recognition under 10 CFR 35.50 (a) (2) (A)" Radiation Safety Officer Training." Provided that you submit the required information.
- The Radiopharmaceutical Science Specialty is less likely to obtain certification under 10 CFR 35.50 "Training for Radiation Safety Officer."
- Radiation Protection Specialty is more likely to conform to the regulations under 10 CFR 35.50 (a) (1). Provided that you submit the required information.

Review of ABSNM's application for recognition will continue upon receipt of ABSNM's official reply to the issues needing attention that are listed and explained above.

Communications from the ABSNM associated with applying for recognition of its certification processes should continue to be addressed to:

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas H. Essig, Chief
Materials Safety and inspection Branch (MS T8F3)
1545 Rockville Pike
Rockville, MD 20852

For further information or for questions, please contact me at (301) 415-7608, mss@nrc.gov.

Mohammad Saba

**From:** "Saha, Ph.D., Gopal" <SAHAG@ccf.org>
**To:** "Mohammad Saba" <MSS@nrc.gov>
**Date:** 10/21/05 4:07PM
**Subject:** ABSNM rad pro specialty.

Dear Mr. Saba:

First of all, I like to thank Dr Howe, Dr Zelac and you for the opportunity to meet with you to discuss the issues related to credentialing requirements of the candidates taking the ABSNM Radiation Protection Specialty Examination for approval of RSO. The meeting was a productive one, since it would have been difficult to resolve these issues by correspondences.

It was decided at the meeting that recognition of ABSNM Radiation Protection Specialty by NRC for RSO approval will be made in two ways: health physics pathway (10CFR35.50 (a) (1)) and medical physics pathway (10CFR35.50 (a) (2)).Accordingly, I have rewritten the requirements for this specialty in two ways: one with an alternative separate Option D in addition to Option C, and the other under the same Option C with an OR. These files are attached. Please see which one you prefer and let me know. Personally I like Option C with an OR, because this will eliminate confusion with two separate headings for the same specialty.

Also to meet overall requirements by NRC in examination itself, I have rewritten the first part of Section D of the current application and the file is attached for you review.

Once I receive your response, please let me know whether I have to submit a new revised application or just this part alone.

Thank you all again.

Gopal B Saha, Ph.D.
Director of Nuclear Chemistry and Pharmacy
Department of Molecular and Functional Imaging
Cleveland Clinic Foundation
Cleveland, OH 44195
216-444-2777

**C. Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree from an accredited college or university in physical science, engineering, biological science or health physics with a minimum of 20 college credits in physical science, **and**

**(ii)** five or more years of professional experience in applied health physics (graduate training may be substituted for no more than 2 years of the experience) including at least 3 years in applied health physics.

**OR**

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, other physical science, engineering or applied mathematics from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full time practical training and/or supervised experience in medical physics.

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference to the candidate's experience and competency;

**C. Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree from an accredited college or university in physical science, engineering, biological science or health physics with a minimum of 20 college credits in physical science, **and**

**(ii)** five or more years of professional experience in applied health physics (graduate training may be substituted for no more than 2 years of the experience) including at least 3 years in applied health physics. .

**D.. Alternative Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, other physical science, engineering or applied mathematics from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full time practical training and/or supervised experience in medical physics.

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

**(2)** In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference to the candidate's experience and competency;

**E. Examination**: All candidates must pass an examination for certification by ABSNM. The examination evaluates knowledge and competence of the candidates in radiation physics and instrumentation, radiation protection, radiation biology, radioisotope production, radiopharmaceutical chemistry, radiation dosimetry, and diagnostic nuclear medicine physics and intrumentation. The certifying examination is written and consists of two parts as detailed below:

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| **Subject:** | ABSNM rad pro specialty. |
| **Creation Date:** | 10/21/05 4:07PM |
| **From:** | "Saha, Ph.D., Gopal" <SAHAG@ccf.org> |
| **Created By:** | SAHAG@ccf.org |

**Recipients**
nrc.gov
TWGWPO02.HQGWDO01
MSS (Mohammad Saba)

| **Post Office** | **Route** |
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| **Security:** | Standard |

**From:** Mohammad Saba
**To:** Sahag@ccf.org
**Date:** 11/4/05 4:17PM
**Subject:** Follow-up

Dr. Saha:

This e-mail is a follow-up on my telephone conversation on November 4, 2005, regarding your October 21, 2005 e-mail in which you were seeking recognition of the American Board of Science in Nuclear Medicine's (ABSNM) certification processes for "Nuclear Physics and Instrumentation Specialty", "Radiopharmaceutical Science Specialty", and " Radiation Protection Specialty" by the U.S. Nuclear Regulatory Commission (NRC).

**Nuclear Physics and Instrumentation Specialty:**

The certification process for ABSNM certification in Nuclear Physics and Instrumentation Specialty meets the applicable requirements in 10 CFR 35.50 (a) (2) for NRC recognition. Please provide a date for which the revisions to the certification process went into effect.

There are several statements in the e-mail which preclude recognition of ABSNM certification process for the remaining specialties without further input from the ABSNM. The issues that require attention are listed and explained below.

**Radiopharmaceutical Science Specialty:**

This specialty does not meet the applicable requirements in 10 CFR 35.50(a)(2) for several reason that were discussed in my e-mail to you dated October 13, 2005.

**Radiation Protection Specialty:**

There still a few items that preclude this specialty board process from recognition by the Nuclear Regulatory Commission ( NRC) that are listed as below:

In section C (i) of the "Credentialing Requirements for ABSNM Certification" for candidates in the "Radiation Protection Specialty" of your application, you need to change "a master or doctoral degree in biological science" to "a master or doctoral degree in biological science with minimum of 20 college credits in physical science."

In section C (ii) of the "Credentialing Requirements for ABSNM Certification" for candidates in the "Radiation Protection Specialty" of your application, forth line, you need to change "reference to the candidate's experience" to "reference attesting to the candidate's experience."

In part 1 examination, you need to change "mathematics" to "mathematics pertaining to the use and measurement of radioactivity."

**Also, please e-mail me the two pathways for the radiation protection specialty that you discussed on the phone.**

Review of ABSNM's application for recognition of the certification process for the Radiation Protection Specialty will continue upon receipt of ABSNM's official reply to the issues needing attention that are listed and explained above.

Communications from the ABSNM associated with applying for recognition of its certification processes should continue to be addressed to:

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas H. Essig, Chief
Materials Safety and inspection Branch (MS T8F3)
11545 Rockville Pike
Rockville, MD 20852

For further information or for questions, please contact me at (301) 415-7608, mss@nrc.gov. Thank you.

Mohammad Saba

**CC:** Cynthia Flannery; Ronald Zelac

**Mail Envelope Properties** (436BCFD3.28B : 23 : 35244)

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|---|---|
| **Subject:** | Follow-up |
| **Creation Date:** | 11/4/05 4:17PM |
| **From:** | Mohammad Saba |
| **Created By:** | MSS@nrc.gov |

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| **Security:** | Standard |
| **To Be Delivered:** | Immediate |
| **Status Tracking:** | Delivered & Opened |

**From:** "Saha, Ph.D., Gopal" <SAHAG@ccf.org>
**To:** "Mohammad Saba" <MSS@nrc.gov>
**Date:** 11/4/05 4:26PM
**Subject:** ABSNM recognition by NRC

Dear Mr Saba:

It was nice to talk you and thank for your guidance in correcting the write-up of our credential requirements for ABSNM candidates. As mutually agreed, I have attached two files, File 1and File 2. Both files are complete requirements for all specialties, except that same requirements for Radiation Protection Specialty have been presented in two ways. I prefer the File 1, because it will avoid possible confusion in the minds of prospective candidates.

Thank you for your help and I am looking forward to your positive response.

Gopal Saha, Ph.D.
216-444-2777



**CC:** "Cannon Hugh C." <HCannon@snm.org>, "Robinson Gregg" <GRobinson@snm.org>

## Credentialing Requirements for ABSNM Certification

### A. Requirements for candidates taking Nuclear Physics and Instrumentation Specialty

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, engineering, applied mathematics, or other physical sciences from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full-time practical training and/or supervised experience in medical physics:

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience and competency.

### B. Requirements for candidates taking Radiopharmaceutical Science Specialty

**(i) General Education:**
A master's or a doctorate degree in physics, nuclear pharmacy, biological science, radiopharmaceutical science, chemistry or other pharmaceutical science from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Three years of full-time practical training and/or supervised experience in radiopharmaceutical science:

(1) Under the supervision of an authorized nuclear pharmacist who is on a licensee's radioactive material license and has experience in radiation safety, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390,

and who will provide a letter of reference attesting to the candidate's experience and competency.

**C. Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree from an accredited college or university in physical science, engineering, health physics, or biological science with a minimum of 20 college credits in physical science, **and**

**(ii)** five or more years of professional experience in applied health physics (graduate training may be substituted for no more than 2 years of the experience) including at least 3 years in applied health physics.

**OR**

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, other physical science, engineering or applied mathematics from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full time practical training and/or supervised experience in medical physics.

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

**(2)** In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience and competency.

**D. Examination**: All candidates must pass an examination for certification by ABSNM. The examination evaluates knowledge and competence of the candidates in radiation physics and instrumentation, radiation protection, radiation biology, radioisotope production, radiopharmaceutical chemistry, radiation dosimetry, and

diagnostic nuclear medicine physics and instrumentation. The certifying examination is written and consists of two parts as detailed below:

**Part 1: General Examination.** Each candidate is required to take this part entitled "General Nuclear Medicine Science." This part involves basic aspects of atomic and nuclear physics, instrumentation, radiopharmaceuticals, mathematics pertaining to the use and measurement of radioactivity, statistics, radiobiology, dosimetry, radiation protection and regulations, basic anatomy and physiology, pathology, clinical diagnostic nuclear medicine physics and instrumentation, clinical in vivo imaging and *in vitro* studies.

**Part 2: Specialty Examination.** Each candidate must take at least one of the following three Specialty examinations. This part examines in depth the knowledge of the candidate in the specialty area.

a. *Nuclear Medicine Physics and Instrumentation.* This examination includes in-depth materials on atomic and nuclear physics, radioactivity measurement, imaging, basic image data processing, statistical analysis, quality control, radiation dose estimation, mathematical modeling, principles of imaging and radioactivity detection and instrumentation, instrument design, health physics and radiation protection and clinical diagnostic nuclear medicine physics.

b. *Radiopharmaceutical Science.* This examination will cover in depth the topics of radionuclide production, radiopharmaceutical design and formulation, radioactivity measurement and radionuclide identification, pharmacology and tracer methodology, quality control, internal dosimetry, radiation protection and regulations, radiochemistry, radiation biology, physiology, toxicology, clinical diagnostic nuclear medicine physics, and clinical uses of radiopharmaceuticals.

c. *Radiation Protection.* This examination includes in depth the topics of types and properties of radiation, interaction of radiation with matter, dose units and concepts, radiobiology, regulations, approaches to radiation protection, shielding, personnel monitoring, internal dose measurements, decontamination, waste disposal, and other aspects of radiation control.

**From:** Mohammad Saba
**To:** Sahag@ccf.org
**Date:** 11/8/05 3:16PM
**Subject:** ABSNM Application

Dr. Saha:

This e-mail is in response to your e-mail dated November 4, 2005 to me seeking NRC recognition for certification process. The application was reviewed and it looks good. However, you need to include the following information to the formal letter that you send to Tom Essig.

1. The website information needs to be submitted as an official signed letter. This is to document the information that is being submitted for review and upon which our final decision will be based.

2. Attach a copy of a sample of your certificate for the two specialty board that you are seeking NRC recognition.

3. The date you identify that the ABSNM meets the NRC criteria.

Review of ABSNM's application for recognition of the certification process for the Radiation Protection Specialty will continue upon receipt of ABSNM's official reply to the issues needing attention that are listed and explained above.

Communications from the ABSNM associated with applying for recognition of its certification processes should continue to be addressed to:

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas H. Essig, Chief
Materials Safety and inspection Branch (MS T8F3)
11545 Rockville Pike
Rockville, MD 20852

For further information or for questions, please contact me at (301) 415-7608, mss@nrc.gov. Thank you.

Mohammad Saba

**CC:** Cynthia Flannery

**Mail Envelope Properties** (4371079D.81F : 23 : 35244)

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| **Subject:** | ABSNM Application |
| **Creation Date:** | 11/8/05 3:16PM |
| **From:** | Mohammad Saba |
| **Created By:** | MSS@nrc.gov |

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| CMF CC (Cynthia Flannery) | | |

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## Credentialing Requirements for ABSNM Certification

**A. Requirements for candidates taking Nuclear Physics and Instrumentation Specialty**

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, engineering, applied mathematics, or other physical sciences from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full-time practical training and/or supervised experience in medical physics:

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience and competency.

**B. Requirements for candidates taking Radiopharmaceutical Science Specialty**

**(i) General Education:**
A master's or a doctorate degree in physics, nuclear pharmacy, biological science, radiopharmaceutical science, chemistry or other pharmaceutical science from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Three years of full-time practical training and/or supervised experience in radiopharmaceutical science:

(1) Under the supervision of an authorized nuclear pharmacist who is on a licensee's radioactive material license and has experience in radiation safety, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390,

and who will provide a letter of reference attesting to the candidate's experience and competency.

**C. Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree from an accredited college or university in physical science, engineering, health physics or biological science with a minimum of 20 college credits in physical science, **and**

**(ii)** five or more years of professional experience in applied health physics (graduate training may be substituted for no more than 2 years of the experience) including at least 3 years in applied health physics. .

**D. Alternative Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, other physical science, engineering or applied mathematics from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full time practical training and/or supervised experience in medical physics.

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience and competency.

**E. Examination**: All candidates must pass an examination for certification by ABSNM. The examination evaluates knowledge and competence of the candidates in radiation physics and instrumentation, radiation protection, radiation biology, radioisotope production, radiopharmaceutical chemistry, radiation dosimetry, and diagnostic nuclear medicine physics and instrumentation. The certifying examination is written and consists of two parts as detailed below:

**Part 1: General Examination.** Each candidate is required to take this part entitled "General Nuclear Medicine Science." This part involves basic aspects of atomic and nuclear physics, instrumentation, radiopharmaceuticals, mathematics pertaining to the use and measurement of radioactivity, statistics, radiobiology, dosimetry, radiation protection and regulations, basic anatomy and physiology, pathology, clinical diagnostic nuclear medicine physics and instrumentation, clinical in vivo imaging and *in vitro* studies.

**Part 2: Specialty Examination.** Each candidate must take at least one of the following three Specialty examinations. This part examines in depth the knowledge of the candidate in the specialty area.

a. *Nuclear Medicine Physics and Instrumentation.* This examination includes in-depth materials on atomic and nuclear physics, radioactivity measurement, imaging, basic image data processing, statistical analysis, quality control, radiation dose estimation, mathematical modeling, principles of imaging and radioactivity detection and instrumentation, instrument design, health physics and radiation protection and clinical diagnostic nuclear medicine physics.

b. *Radiopharmaceutical Science.* This examination will cover in depth the topics of radionuclide production, radiopharmaceutical design and formulation, radioactivity measurement and radionuclide identification, pharmacology and tracer methodology, quality control, internal dosimetry, radiation protection and regulations, radiochemistry, radiation biology, physiology, toxicology, clinical diagnostic nuclear medicine physics, and clinical uses of radiopharmaceuticals.

c. *Radiation Protection.* This examination includes in depth the topics of types and properties of radiation, interaction of radiation with matter, dose units and concepts, radiobiology, regulations, approaches to radiation protection, shielding, personnel monitoring, internal dose measurements, decontamination, waste disposal, and other aspects of radiation control.

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**Subject:** ABSNM recognition by NRC
**Creation Date:** 11/4/05 4:25PM
**From:** "Saha, Ph.D., Gopal" <SAHAG@ccf.org>

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nrc.gov
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MSS (Mohammad Saba)

snm.org
GRobinson CC (Robinson Gregg)
HCannon CC (Cannon Hugh C.)

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**Security:** Standard

**From:** Mohammad Saba
**To:** MCannon@snm.org; Sahag@ccf.org
**Date:** 12/1/05 2:38PM
**Subject:** Follow-up E-mail Regarding the ABSNM Application

Dear Dr. Saha:

This a follow-up e-mail is to summarize our telephone conversation on November 28, 2005, regarding the ABSNM letter to Tom Essig applying for NRC recognition of the board certification process.

The following issues we discussed on the phone today:

1. The updated website information needs to be submitted as an attachment to an official signed letter. The website information that was attached to your November 18, 2005 letter was not updated. This is the information that upon which the final decision will be based upon.

2. Also, we discussed that the requirements for candidates taking radiation protection specialty, medical physics pathway, does not comply with the new regulations under 10 CFR 35.50(a)(2). The reason is because in the provisions of the March 30, 2005, Final Rule: "Medical Use of Byproduct Material - Recognition of Specialty Boards - Part 35, Federal Register /Vol. 70, page 16351, first paragraph, states that the candidate to be qualified as RSO under10 CFR 35.50(a)(2) must be certified in either diagnostic radiology or nuclear medicine. The address for this federal registry is http://www.nrc.gov/reading-rm/doc-collections/cfr/fr/2005/20050330.pdf.

Review of ABSNM's application for recognition of the certification process for the Radiation Protection Specialty will continue upon receipt of ABSNM's official reply to the issues needing attention that are listed and explained above.

Communications from the ABSNM associated with applying for recognition of its certification processes should continue to be addressed to:

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas H. Essig, Chief
Materials Safety and inspection Branch (MS T8F3)
11545 Rockville Pike
Rockville, MD 20852

**For further information or for questions, please contact me at (301) 415-7608, mss@nrc.gov. Thank you.**

Mohammad Saba

**CC:** Cynthia Flannery; Donna-Beth Howe

**Mail Envelope Properties** (438F5150.3E7 : 23 : 35244)

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|---|---|
| **Subject:** | Follow-up E-mail Regarding the ABSNM Application |
| **Creation Date:** | 12/1/05 2:38PM |
| **From:** | Mohammad Saba |
| **Created By:** | MSS@nrc.gov |

| **Recipients** | **Action** | **Date & Time** |
|---|---|---|
| ccf.org | | |
| SAHAG (Sahag@ccf.org) | | |
| nrc.gov | | |
| OWGWPO02.HQGWDO01 | Delivered | 12/01/05 2:39 PM |
| CMF CC (Cynthia Flannery) | | |
| nrc.gov | | |
| twf4_po.TWFN_DO | Delivered | 12/01/05 2:39 PM |
| DBH CC (Donna-Beth Howe) | | |
| snm.org | | |
| MCannon (MCannon@snm.org) | | |

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| **Files** | **Size** | **Date & Time** |
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| MESSAGE | 3171 | 12/01/05 02:38PM |

**Options**

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| **Auto Delete:** | No |
| **Expiration Date:** | None |
| **Notify Recipients:** | Yes |
| **Priority:** | Standard |
| **Reply Requested:** | No |
| **Return Notification:** | None |
| **Concealed Subject:** | No |
| **Security:** | Standard |
| **To Be Delivered:** | Immediate |
| **Status Tracking:** | Delivered & Opened |

AMERICAN BOARD OF SCIENCE IN NUCLEAR MEDICINE

August 12, 2005

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas Essig, Chief,
Materials Safety and Inspection Branch (MS T8F3)
11545 Rockville Pike
Rockville, MD 20852

Subject: BOARD RECOGNITION OF ABSNM BY NRC FOR RADIATION SAFETY OFFICERS

Dear Mr. Essig:

On behalf of the American Board of Science in Nuclear Medicine (ABSNM), we would like to submit our letter of application for the Nuclear Regulatory Commission (NRC) recognition of the ABSNM certifying process as listed under the board recognition requirements in the revised training and experience requirements in 10CFR35.50, Subpart B for Radiation Safety Officers.

The ABSNM was founded as a result of the Society of Nuclear Medicine, the American College of Nuclear Physicians, and the American College of Nuclear Medicine recognizing the need for certifying health specialists in the field of Nuclear Medicine Science. The ABSNM was incorporated on September 9, 1976 and was established to develop procedures and standards to examine candidates and issue certification to those individuals who satisfied the requirements established by the Board. The objectives and purposes of the ABSNM include:

(a) To evaluate the standards of graduate education in nuclear medicine science. For purposes of the Board, the practice of nuclear medicine science is defined as dealing with the diagnostic, therapeutic (exclusive of sealed sources) and investigative uses of radionuclides.

(b) To establish and determine qualifications of voluntary candidates requesting examination for certification in nuclear medicine.

(c) To arrange, control, and conduct examinations to test the competence of candidates for certification.

(d) To grant and issue certificates in nuclear medical science to applicants who have been found qualified by the Board.

(e) To maintain a registry of holders of such certificates and serve the medical and lay public by preparing and furnishing lists of practitioners whom the Board has certified.

(f) In general, to encourage the study and improve the practice of nuclear medical science.

c/o Society of Nuclear Medicine | 1850 Samuel Morse Drive | Reston, VA 20190-5316 | Tel: 703.708.9000 | Fax: 703.708.9015
www.snm.org/absnm

The ABSNM would like to submit application for NRC recognition of the Board to approve Radiation Safety Officer. Included in this letter for reference are the new requirements effective June 18, 2005.

A certificate issued by the ABSNM indicates that its holder has successfully completed certain requirements of study and professional experience that the Board considers necessary to constitute an adequate foundation in Nuclear Medicine Science. It also indicates that the candidate has passed an examination for ability and competence in thee field of Nuclear Medicine Science.

The Board requires that applicants for admission to the examination for a certificate in Nuclear Medicine Science shall submit evidence demonstrating that they have met the following requirements:

**Current Requirements**
**June 18, 2005**

**A. General Education**
A master's or doctorate degree with a major in a field of medical physics, pharmaceutical science, engineering, applied mathematics, pharmacy, biology or other physical sciences or health physics from an accredited college or university.

**B. (1) Nuclear Physics and Instrumentation Specialty Examination:**
Two years (doctorate candidates) or three years (master's candidates) of full-time training and/or supervised experience in nuclear medicine physics:

(i) Under the supervision of a certified nuclear physicist whose certification is recognized by NRC, and who will provide a letter of reference attesting to the candidate's experience; **or**
*(ii)* In a clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience.

**(2) Radiopharmaceutical Science Specialty Examination:**
Two years (doctorate candidate) or three years (master's candidates) of full-time training and/or supervised experience in radiopharmaceutical science:

(i) Under the supervision of a certified nuclear chemist or pharmacist whose certification is recognized by NRC, and who will provide a letter of reference attesting to the candidate's experience; **or**
(ii) In a clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience.

**(3) Radiation Protection Specialty Examination:**
Two years (doctorate candidates) or three years (master's candidates) of full time training and/or supervised experience in radiation protection.

(i) Under the supervision of a radiation safety officer or a medical physicist who is certified by a specialty board recognized by the NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience; **or**
(ii) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference to the candidate's competency.

**C. Examination**: All candidates must pass an examination as detailed below:

The certifying examination is written and consists of two parts:

Each admitted candidate is required to take Part One entitled "General Nuclear Medicine Science." This confers basic aspects of atomic and nuclear physics, instrumentation, radiopharmaceuticals, mathematics and statistics, radiobiology, radiation protection and regulations, basic anatomy (physiology), pathology, and clinical nuclear medicine, including imaging and *in vitro* studies. Part two examines in depth the knowledge of a predetermined sub-specialty area of the candidate's choice and will cover one of the following:

a. *Nuclear Medicine Physics and Instrumentation* in greater depth than in Part One, including atomic and nuclear physics, radioactivity measurement, imaging, basic image data processing, statistical analysis, quality control, radiation dose estimation, mathematical modeling, principles of imaging and radioactivity detection and instrumentation, instrument design, health physics and radiation protection and associated clinical applications.
b. *Radiopharmaceutical Science.* This examination will cover radionuclide production, radiopharmaceutical design and formulation, radioactivity measurement and radionuclide identification, pharmacology and tracer methodology, quality control, radiation protection and regulations, radiochemistry, radiation biology, physiology, and toxicology, clinical uses of radiopharmaceuticals.
c.*Radiation Protection.* This examination includes types and properties of radiation, interaction of radiation with matter, dose units and concepts, radiobiology, regulations, approaches to radiation protection, shielding, personnel monitoring, internal dose measurements, decontamination, waste disposal, and other aspects of radiation control

By achieving certification, the nuclear medicine scientist recognizes his or her responsibility to the profession. He or she agrees to maintain technical competence

and commits to remain active in the field by continually being acquainted with pertinent scientific, technical and regulatory developments. Implicit within certification is an agreement to uphold and reflect the highest level of professional and scientific ethics in all areas of Nuclear Medicine Science. The relationships between the Nuclear Medicine Scientist and colleagues, clients, governmental agencies and the general public should always reflect the highest level of professional ethics and integrity.

A certificate will be issued to each candidate who meets the requirements of the Board and passes the examination and will indicate that the holder of the certificate has adequate training in Nuclear Medicine Science and has demonstrated knowledge adequate to practice Nuclear Medicine Science in one or more of its specialties.

A certificate granted by the Board does not of itself confer, or purport to confer, any degree or legal qualifications, privileges or license to practice Nuclear Medicine Science. A certificate granted by the Board holds lifetime validity from the time it is issued.

Information on the ABSNM and the examination is also available on the ABSNM website. http://www.snm.org/ABSNM

The ABSNM acknowledges its commitment to and responsibility for the completeness and accuracy of the information provided to the NRC.

The ABSNM appreciates the opportunity to submit this application and is available to answer any questions or concerns regarding the examination and the application. We would appreciate prompt recognition by the NRC of the ABSNM as one of the Boards to approve the RSO positions.

Thank you for your time and consideration of this application.

Sincerely,

Subhash Danak

Subhash Danak, MS
President
ABSNM

Gopal Saha

Gopal Saha, PhD
Immediate Past President
ABSNM

Cc: Virginia Pappas, CAE

AMERICAN BOARD OF SCIENCE IN NUCLEAR MEDICINE

October 3, 2005

US Nuclear Regulatory Commission
Attn: Thomas H. Essig, Chief
Material Safety and Inspection Branch
1545 Rockville Pike
Rockville, MD 20852

Re: Board Recognition of ABSNM by NRC for Radiation Safety Officers

Dear Mr. Essig:

This letter is a revision to our original application dated August 12, 2005 for the recognition of American Board of Science in Nuclear Medicine (ABSNM) by NRC for Radiation Safety Officers under 10CFR35.50, based on the teleconferences on September 8 between Dr. Gopal Saha and Mr. Mohammad Saba, and on September 15 between Dr. Gopal Saha and Dr. Donna-Beth Howe and Mr. Mohammad Saba. The essential points of the conference calls have been given in the attachment.

It is indicated that NRC is likely to recognize ABSNM certification with Nuclear Physics and Instrumentation Specialty under 10CFR35.50(a)(2)A "Radiation Safety Officer Training" and ABSNM certification with Radiation Protection Specialty under 10CFR35.50(a)(1) "Radiation Safety Officer Training", provided ABSNM revises the credentialing requirements for the candidates to meet those of 10CFR35.50. Accordingly, given below are the revised credentialing requirements, which will be posted on the ABSNM website, once approved by NRC.

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## Credentialing Requirements for ABSNM Certification

### A. Requirements for candidates taking Nuclear Physics and Instrumentation Specialty

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, engineering, applied mathematics, or other physical sciences from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full-time practical training and/or supervised experience in medical physics:

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience and competency.

**B. Requirements for candidates taking Radiopharmaceutical Science Specialty**

**(i) General Education:**
A master's or a doctorate degree in physics, nuclear pharmacy, biological science, radiopharmaceutical science, chemistry or other pharmaceutical science from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Three years of full-time practical training and/or supervised experience in radiopharmaceutical science:

(1) Under the supervision of an authorized nuclear pharmacist who is on a licensee's radioactive material license and has experience in radiation safety, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience and competency.

**C. Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree from an accredited college or university in physical science, engineering, biological science or health physics with a minimum of 20 college credits in physical science, **and**

**(ii) Training/Work Experience:**
(a) Two years (doctorate candidates) or three years (master's candidates) of full time practical training and/or supervised experience in radiation protection:

(1) Under the supervision of a medical physicist who is certified in

medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference to the candidate's experience and competency;

**or**

(b) three years of professional experience in applied health physics.

D. **Examination:** All candidates must pass an examination for certification by ABSNM. The certifying examination is written and consists of two parts as detailed below:

**Part 1**: Each candidate is required to take this part entitled "General Nuclear Medicine Science." This part involves basic aspects of atomic and nuclear physics, instrumentation, radiopharmaceuticals, mathematics and statistics, radiobiology, dosimetry, radiation protection and regulations, basic anatomy and physiology, pathology, clinical diagnostic nuclear medicine physics and instrumentation, clinical in vivo imaging and *in vitro* studies.

**Part 2**: Each candidate must take one of the following three Specialty examinations. This part examines in depth the knowledge of the candidate in the specialty area.

a. *Nuclear Medicine Physics and Instrumentation.* This examination includes in-depth materials on atomic and nuclear physics, radioactivity measurement, imaging, basic image data processing, statistical analysis, quality control, radiation dose estimation, mathematical modeling, principles of imaging and radioactivity detection and instrumentation, instrument design, health physics and radiation protection and clinical diagnostic nuclear medicine physics.
b. *Radiopharmaceutical Science.* This examination will cover in depth the topics of radionuclide production, radiopharmaceutical design and formulation, radioactivity measurement and radionuclide identification, pharmacology and tracer methodology, quality control, internal dosimetry, radiation protection and regulations, radiochemistry, radiation biology, physiology, toxicology, clinical diagnostic nuclear medicine physics, and clinical uses of radiopharmaceuticals.
c. *Radiation Protection.* This examination includes in depth the topics of types and properties of radiation, interaction of radiation with matter, dose

units and concepts, radiobiology, regulations, approaches to radiation protection, shielding, personnel monitoring, internal dose measurements, decontamination, waste disposal, and other aspects of radiation control.

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Please note that ABSNM certification with Radiopharmaceutical Science Specialty is included for recognition. NRC indicated that ABSNM certification with Radiopharmaceutical Science Specialty may not be recognized under 10CFR35.50. ABSNM would like to request NRC to consider this specialty for RSO approval.

The primary reason for this request is that NRC approves an authorized nuclear pharmacist who has a pharmacy degree and two years of training/experience in nuclear pharmacy practice (who is on a radioactive license) to be a radiation safety officer under 10CFR35.50(c)(2). In parallel, ABSNM with Radiopharmaceutical Science Specialty requires a master's or a doctorate degree in radiopharmaceutical science, physics, chemistry, biological science, nuclear pharmacy, or other pharmaceutical science, and three years of training/work experience under the supervision of an authorized nuclear pharmacist or authorized user physicians. The contents of the general and specialty examinations given above cover extensive radiation safety training and experience required of the candidates. It is the opinion of ABSNM that ABSNM diplomates are better trained and qualified than authorized nuclear pharmacists to be radiation safety officers.

Another point of consideration is that RSO approval by way of board certification is a two-step process: (1) board certification and (2) attestation of competency by a preceptor radiation safety officer. Even if ABSNM certification is recognized by NRC, an ABSNM diplomate automatically does not become a radiation safety officer. In addition to board certification, NRC requires a diplomate to submit an attestation of competency by a preceptor radiation safety officer (10CFR35.50(d)) in various aspects of radiation protection (10CFR35.50(e)). ABSNM strongly contends that these additional requirements in radiation safety training/experience beyond board certification and the subject materials of ABSNM examinations amply justify the recognition of ABSNM with Radiopharmaceutical Science Specialty by NRC for the first part of the RSO approval.

ABSNM, therefore, requests the approval of all three specialties by NRC.

The objective and mission of ABSNM have been given in the original application and this application serves as a revised application.

We would appreciate your favorable decision on our application and are looking forward to your positive response.

Subhash Danak

Subhash Danak, M.S.
President

Gopal Saha

Gopal B Saha, Ph.D.
Immediate Past President

c/o Society of Nuclear Medicine | 1850 Samuel Morse Drive | Reston, VA 20190-5316 | tel: 703.708.9000 | Fax: 703.708.9015
www.snm.org/absnm

AMERICAN BOARD OF SCIENCE IN NUCLEAR MEDICINE

November 18, 2005

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas Essig, Chief,
Materials Safety and Inspection Branch (MS T8F3)
11545 Rockville Pike
Rockville, MD 20852

Subject: BOARD RECOGNITION OF ABSNM BY NRC FOR RADIATION SAFETY OFFICERS

Dear Mr. Essig:

In response to our application dated October 3, 2005 for the recognition of American Board of Nuclear Medicine Science (ABSNM) by NRC for Radiation Safety Officers (RSO) under 10CFR35.50, NRC representatives asked for a meeting at the NRC office in Rockville, MD between ABSNM representatives and NRC representatives to discuss our application at length. The meeting was held on October 20, 2005 and the individuals present were Dr. Donna-Beth Howe, Dr. Ronald Zelac and Mr. Mohammad Saba from NRC and Mr. Hugh Cannon, Mr. Gregg Robinson and Dr. Gopal Saha from ABSNM. The meeting was productive and NRC indicated that it will approve Nuclear Medicine Physics and Instrumentation and Radiation Protection Specialties, with some modifications in requirements for the latter.

With instructions from NRC at the meeting and per e-mail instructions from Mr. Saba, ABSNM submits the following:

1. A revised copy of "Requirements for ABSNM Certification"

2. The ASBSNM website is www.snm.org/absnm. Credentialing requirements and all pertinent information have been posted on the website, as required by NRC

3. Sample copies of certificates for two specialties that are awarded to the successful candidates.

4. Attached credentialing requirements meeting NRC criteria will be implemented effective June, 2006.

We hope the above are satisfactory for your consideration. We are looking forward to your positive response.

Gopal Saha

Subhash Danak, M.S.
President

Gopal B. Saha, Ph.D.
Immediate Past President

c/o Society of Nuclear Medicine | 1850 Samuel Morse Drive | Reston, VA 20190-5316 | Tel: 703.708.9000 | Fax: 703.708.9013
www.snm.org/absnm

# EXAMINATION AND CERTIFICATION

**NEW** Application for 2005 Certification .pdf file now online!**
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## Objectives

The objectives and purposes of the American Board of Science in Nuclear Medicine include the following:

a. To elevate the standards of graduate education in nuclear medical science. For the purposes of the Board, the practice of nuclear medical science is defined as dealing with diagnostic, therapeutic (exclusive of sealed radiation sources) and investigative uses of radionuclides.
b. To establish and determine qualifications of voluntary candidates requesting examination for certification in nuclear medical sciences.
c. To arrange, control, and conduct examinations to test the competence of the candidates for certification.
d. To grant and issue certificates in nuclear medical science to applicants who have been found qualified by the Board. No certificates granted or issued by the Board shall confer or purport to confer upon any person any legal qualification, privilege, or license to practice nuclear medicine or any other specialty or branch of medicine, nor shall it purport to be used under, in pursuance of, or by virtue of any statutory governmental authority.
e. To maintain a registry of holders of such certificates, and serve the medical and lay public by preparing and furnishing lists of practitioners who have been certified by the Board.
f. In general, to encourage the study and improve the practice of nuclear medical science.

## Certificates

A certificate is issued to each candidate who meets the requirements of the Board and passes the examination as outlined below and indicates that the holder of the certificate has adequate training in Nuclear Medicine Science and has demonstrated knowledge adequate to practice Nuclear Medicine Science in one or more of its sub-specialties:

a. Nuclear Medicine Physics and Instrumentation
b. Radiopharmaceutical Science
c. Radiation Protection

A certificate granted by this Board does not of itself confer, or purport to confer, any degree of legal qualifications, privileges or license to practice Nuclear Medicine Science.

## Meaning of Certification

A certificate from the American Board of Science in Nuclear Medicine indicates that its holder has successfully completed certain requirements of study and professional experience, which the Board considers necessary to constitute an adequate foundation in Nuclear Medicine Science. It also indicates that the candidate has passed an examination for ability and competence in the field of Nuclear Medicine Science.

## General Requirements to Take the Exam

Applicants for admission to the examination for a certificate in Nuclear Medicine Science are required to submit evidence demonstrating that they have met the following standard:

**A. General Education**

A master's or doctorate degree with a major in a field of medical physics, pharmaceutical science, engineering, applied mathematics, pharmacy, biology or other physical sciences or health physics from an accredited college or university.

**B. (1) Nuclear Physics and Instrumentation Specialty Examination:**

Two years (doctorate candidates) or three years (master's candidates) of full-time training and/or supervised experience in nuclear medicine physics:

(i) Under the supervision of a certified nuclear physicist whose certification is recognized by NRC, and who will provide a letter of reference attesting to the candidate's experience; **or**

(ii) In a clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience.

**(2) Radiopharmaceutical Science Specialty Examination:**

Two years (doctorate candidate) or three years (master's candidates) of full-time training and/or supervised experience in radiopharmaceutical science:

(i) Under the supervision of a certified nuclear chemist or pharmacist whose certification is recognized by NRC, and who will provide a letter of reference attesting to the candidate's experience; **or**

(ii) In a clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience.

**(3) Radiation Protection Specialty Examination**:

Two years (doctorate candidates) or three years (master's candidates) of full time

training and/or supervised experience in radiation protection.

(i) Under the supervision of a radiation safety officer or a medical physicist who is certified by a specialty board recognized by the NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience; **or**

(ii) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference to the candidate's competency.

**C. Examination**: All candidates must pass an examination as detailed below:

The certifying examination is written and consists of two parts:

Each admitted candidate is required to take Part One entitled "General Nuclear Medicine Science." This confers basic aspects of atomic and nuclear physics, instrumentation, radiopharmaceuticals, mathematics and statistics, radiobiology, radiation protection and regulations, basic anatomy (physiology), pathology, and clinical nuclear medicine, including imaging and *in vitro* studies. Part two examines in depth the knowledge of a predetermined sub-specialty area of the candidate's choice and will cover one of the following:

a. *Nuclear Medicine Physics and Instrumentation* in greater depth than in Part One, including atomic and nuclear physics, radioactivity measurement, imaging, basic image data processing, statistical analysis, quality control, radiation dose estimation, mathematical modeling, principles of imaging and radioactivity detection and instrumentation, instrument design, health physics and radiation protection and associated clinical applications.
b. *Radiopharmaceutical Science*. This examination will cover radionuclide production, radiopharmaceutical design and formulation, radioactivity measurement and radionuclide identification, pharmacology and tracer methodology, quality control, radiation protection and regulations, radiochemistry, radiation biology, physiology, and toxicology, clinical uses of radiopharmaceuticals.
c. *Radiation Protection.* This examination includes types and properties of radiation, interaction of radiation with matter, dose units and concepts, radiobiology, regulations, approaches to radiation protection, shielding, personnel monitoring, internal dose measurements, decontamination, waste disposal, and other aspects of radiation control.

**Examination Schedule**

The ABSNM Certification Examination is offered annually on Saturdays preceding the Society of Nuclear Medicine Annual Meetings.

****NEW**Application for Certification .pdf file now online!**
Click here.

Send mail to Mac Cannon, Leadership Services, at mcannon@snm.org with questions or comments about this web site.

# American Board of Science in Nuclear Medicin

The American Board of Science in Nuclear Medicine, organized through the cooperations of the American College of Nuclear Medicine, the American College of Nuclear Physicians, and the Society of Nuclear Medicine,

Hereby certifies that

has met established standards and qualifications, and passed examinations conducted under its authority thereby demonstrating to the satisfaction of the Board the ability to practice Nuclear Medicine Science in all its branches, with special competence in

## Radiation Protection

# American Board of Science in Nuclear Medicin

The American Board of Science in Nuclear Medicine, organized through the cooperations of the American College of Nuclear Medicine, the American College of Nuclear Physicians, and the Society of Nuclear Medicine,

Hereby certifies that

has met established standards and qualifications, and passed examinations conducted under its authority thereby demonstrating to the satisfaction of the Board the ability to practice Nuclear Medicine Science in all its branches, with special competence in

## Nuclear Medicine Physics and Instrumentation

AMERICAN BOARD OF SCIENCE IN NUCLEAR MEDICINE

December 9, 2005

U.S. Nuclear Regulatory Commission
ATTN: Mr. Thomas Essig, Chief,
Materials Safety and Inspection Branch (MS T8F3)
11545 Rockville Pike
Rockville, MD 20852

Subject: BOARD RECOGNITION OF ABSNM BY NRC FOR RADIATION SAFETY OFFICERS

Dear Mr. Essig:

According to suggestions made by Mr Mohammad Saba of NRC in phone conversation and in his e-mail dated December 1, 2005 and also after consultation with Dr, Ronald Zelac of NRC, we are submitting this fourth revision of our application for the recognition of American Board of Nuclear Medicine Science (ABSNM) by NRC for Radiation Safety Officers (RSO) under 10CFR35.50. Enclosed is an attachment on revised "Requirements for ASBSNM Certification". The information in this document should match with the information posted on www.snm.org/absnm. You have two samples of ABSNM certificates already sent to you along with the last application.

Please note that even though ABSNM does not agree, it has taken out the option of the Medical Physicist candidates taking the Radiation Protection Specialty Examination for RSO approval.

It is hoped that this application will fulfill the requirements for NRC recognition of ABSNM diplomates in Nuclear Medicine Physics and Instrumentation and Radiation Protection Specialties for RSOs.

We are looking forward to your positive response.

Thank you.

Sincerely,

Subhash Danak, MS
President

Gopal B Saha, PhD
Past President

c/o Society of Nuclear Medicine | 1850 Samuel Morse Drive | Reston, VA 20190-5316 | Tel: 703.708.9000 | Fax: 703.708.9013
www.snm.org/absnm

## Requirements for ABSNM Certification

**A. Requirements for candidates taking Nuclear Medicine Physics and Instrumentation Specialty**

**(i) General Education:**
A master's or a doctorate degree in physics, medical physics, engineering, applied mathematics, or other physical sciences from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Two years (doctorate candidates) or three years (master's candidates) of full-time practical training and/or supervised experience in medical physics:

(1) Under the supervision of a medical physicist who is certified in medical physics by a specialty board recognized by NRC or an Agreement State, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's experience and competency.

**B. Requirements for candidates taking Radiopharmaceutical Science Specialty**

**(i) General Education:**
A master's or a doctorate degree in physics, nuclear pharmacy, biological science, radiopharmaceutical science, chemistry or other pharmaceutical science from an accredited college or university, **and**

**(ii) Training/Work Experience:**
Three years of full-time practical training and/or supervised experience in radiopharmaceutical science:

(1) Under the supervision of an authorized nuclear pharmacist who is on a licensee's radioactive material license and has experience in radiation safety, and who will provide a letter of reference attesting to the candidate's experience and competency; **or**

(2) In clinical nuclear medicine facilities providing diagnostic and/or therapeutic services under the direction of physicians who meet the requirements for authorized users in 10CFR35.290 and 10CFR35.390, and who will provide a letter of reference attesting to the candidate's

experience and competency.

**C. Requirements for candidates taking Radiation Protection Specialty**

**(i) General Education:**
A master's or a doctorate degree from an accredited college or university in physical science, engineering, health physics, or biological science with a minimum of 20 college credits in physical science, **and**

**(ii)** five or more years of professional experience in health physics (graduate training may be substituted for no more than 2 years of the experience) including at least 3 years in applied health physics.

**D. Examination:** All candidates must pass an examination for certification by ABSNM. The examination evaluates knowledge and competence of the candidates in radiation physics and instrumentation, radiation protection, radiation biology, radioisotope production, radiopharmaceutical chemistry, radiation dosimetry, and diagnostic nuclear medicine physics and instrumentation. The certifying examination is written and consists of two parts as detailed below:

**Part 1: General Examination.** Each candidate is required to take this part entitled "General Nuclear Medicine Science." This part involves basic aspects of atomic and nuclear physics, instrumentation, radiopharmaceuticals, mathematics pertaining to the use and measurement of radioactivity, statistics, radiobiology, dosimetry, radiation protection and regulations, basic anatomy and physiology, pathology, clinical diagnostic nuclear medicine physics and instrumentation, clinical in vivo imaging and *in vitro* studies.

**Part 2: Specialty Examination.** Each candidate must take at least one of the following three Specialty examinations. This part examines in depth the knowledge of the candidate in the specialty area.

a. *Nuclear Medicine Physics and Instrumentation.* This examination includes in-depth materials on atomic and nuclear physics, radioactivity measurement, imaging, basic image data processing, statistical analysis, quality control, radiation dose estimation, mathematical modeling, principles of imaging and radioactivity detection and instrumentation, instrument design, health physics and radiation protection and clinical diagnostic nuclear medicine physics.
b. *Radiopharmaceutical Science.* This examination will cover in depth the topics of radionuclide production, radiopharmaceutical design and formulation, radioactivity measurement and radionuclide identification,

pharmacology and tracer methodology, quality control, internal dosimetry, radiation protection and regulations, radiochemistry, radiation biology, physiology, toxicology, clinical diagnostic nuclear medicine physics, and clinical uses of radiopharmaceuticals.

c. *Radiation Protection.* This examination includes in depth the topics of types and properties of radiation, interaction of radiation with matter, dose units and concepts, radiobiology, regulations, approaches to radiation protection, shielding, personnel monitoring, internal dose measurements, decontamination, waste disposal, and other aspects of radiation control.