

**From:** Thomas Thompson  
**To:** William D McCumbee  
**Date:** Mon, Apr 4, 2005 8:25 AM  
**Subject:** RE: Possession limits for your NRC license 47-05972-02

Any sealed source which your license does not permit you to possess in the form "any" should be listed by manufacturer and model number. Therefore if replacing an old source with a new one of a different manufacturer or model number the license would need to be amended first if the new source does not fit within your "any" line item authorization. Of course you can add the manufacturer and model number of sources you think you are likely to purchase before hand.

>>> "McCumbee, William D" <mccumbee@marshall.edu> 04/01/05 11:52AM >>>  
NRC License No. 47-05972-02  
Control No. 136224

Dear Mr. Thompson,

Thank you for your response to my questions. I'm clear on most of the issues; however, the registration of sealed sources by specific model number has left me with some uncertainty about the proper protocol under the new License for acquiring new sealed sources, or for replacing old source capsules with compatible models now in production.

Since specific model numbers appear on the new License for the existing sources, would factory exchange of an old source capsule for a compatible new capsule with a different model number be a violation of our license conditions, even if the new source has an SSD Registration Certificate and our possession limits for activity are not exceeded?

Must we submit the manufacturer's name and model number and obtain prior NRC approval before we acquire any additional sealed source for our inventory?

If each new sealed source acquisition requires prior NRC approval, will that require a formal License amendment?

With regard to your last e-mail, we have three Am-241 sources in our inventory that may have to be listed on our License, since Am-241 is not included on 10 CFR33.100 Schedule A:

Activity (mCi)	Reference Date	Manufacturer	Model Number	Uses
2.0	1995	Amersham	AMC-21	teaching &
research				
0.004261	11-07-85	Eberline	DNS-5	
calibration & reference				
0.00001046	01-06-00	IPL	GF-241	calibration &
reference				

Note that the Eberline source is generally licensed under 10 CFR 31.8, but would fill most of our "any" form possession limit unless separately listed on our License.

In answer to your question about our possession limit for the Cs-137 calibrator, I am requesting a 165-mCi limit for the AEA Model 77302 capsule. We would ship the whole Amersham Model 773 Calibrator to the factory for source exchange when needed, thereby avoiding the simultaneous possession of two such units.

Thank you.

**Mail Envelope Properties**

(4251322C.D3B : 23 : 35376)

**Subject:** RE: Possession limits for your NRC license 47-05972-02  
**Creation Date:** Mon, Apr 4, 2005 8:25 AM  
**From:** Thomas Thompson

**Created By:** TKT@nrc.gov

**Recipients**  
marshall.edu  
mccumbee (William D McCumbee)

**Post Office**

**Route**  
marshall.edu

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	13804	Monday, April 4, 2005 8:25 AM

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**Reply Requested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard

Will McCumbee

-----Original Message-----

From: Thomas Thompson [mailto:TKT@nrc.gov]  
Sent: Wednesday, March 30, 2005 10:57 AM  
To: McCumbee, William D  
Subject: RE: Possession limits for your NRC license 47-05972-02

Thank you for your timely review.

I will answer your questions by item as follows:

A. The condition which goes with Item 8. A. is :

If only one radionuclide is possessed, the possession limit is the quantity specified for that radionuclide in 10 CFR 33.100, Schedule A, Column I. If two or more radionuclides are possessed, the possession limit is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in 10 CFR 33.100, Schedule A, Column I, for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.

B. Polonium-210 or any other materials included in 33.100 Schedule A may be possessed sealed or unsealed. Our licensing policy, in general, is to identify manufacturer and model number for those sealed sources which are not included under "any" form. So you would be able to have other Polonium sealed sources.

C. As far as the Am-241 sealed source limit, 10 millicuries would be ok as long as you specify the manufacturer and model number of each sealed source that you want listed.

E/F. The Cs-137 calibration sources are not large enough to affect FA. Do you need 150 + 165 millicuries so that you may possess both sources at one time or do you just want a 165 millicurie limit for the 773 calibrator?

H. You may possess I-129 sealed or unsealed sources that fit under 6.A. without additional amendments.

I. If the Co-60 sealed sources do not fit under 6.A. then you would need to amend your license to add specific manufacturers and model numbers for any different sealed sources from those already identified that you wanted to purchase.

>>> "McCumbee, William D" <[mccumbee@marshall.edu](mailto:mccumbee@marshall.edu)> 03/29/05 07:21PM >>>  
License No. 47-05972-02  
Control No. 136224

Dear Mr. Thompson,

I have a few concerns and questions regarding the proposed possession list that you sent for me to review.

- A. Does condition 12 refer to the financial assurance restrictions?
- B. Polonium-210

Although we do not currently possess any sealed sources that contain polonium-210, I would like to maintain the option of purchasing polonium-210 sealed sources when the need arises. At Marshall University, polonium-210 sealed sources are used in physical science courses to demonstrate alpha particle shielding and in Modern Physics to study alpha particle Rutherford scattering. The professor who teaches Modern Physics was unable to observe the angles of scattering that were of interest when he used 0.1-microcurie sources. Hence, a 20-nanocurie limit would be too low. My preference for polonium-210 would be to use the limit in Section 33.100, Schedule A as restricted to stay within the limits for our financial assurance. In our financial assurance worksheet, we used a sealed source limit of 1-millicurie for polonium-210.

- C. Americium-241

In our current license, possession limits for americium-241 are listed twice: a 100 mCi sealed source limit and a 5-microcurie limit for "any chemical and physical form." The proposed 0.006-mCi limit for "any" is fine; however, we need a greater limit for sealed sources because we already have in our possession a 2-mCi sealed source, a 4.3 microcurie sealed source, and a 0.01-microcurie source. A sealed source limit of 100 mCi, as is in our current license, is probably excessive for our needs. A limit in the range of 5 to 10-mCi would be more realistic.

- E/F. Cesium-137

I would like to retain the option of replacing the source in the Amersham Model 773 calibrator with a source of up to 165-mCi. A 100-mCi limit for the source in the ICN Model 375 is fine. How does the possession of these 2 calibrators affect our possession of smaller sealed sources? In our financial assurance worksheet, we used a sealed source limit of 265.5-mCi for cesium-137.

H. Iodine-129

The combined activity of the three iodine-129 sources that we possess approaches the proposed possession limit of 0.0002-mCi. Does this mean that we will need a license amendment to purchase another source or can we purchase other iodine-129 sources as long as we stay within the limits of Schedule A, Section 33.100 as restricted for financial assurance considerations?

I. Cobalt-60

Does the sealed source model limit mean that we must have a license amendment to replace either of these ICN375 sources with currently available IPL brand NRC-registered sources since ICN no longer manufactures the ICN375? The possession limit is fine. rposessed sealed or unsealed. Our lice

Thank you, in advance, for answering my questions and considering my requests.

Sincerely,

Will McCumbee

-----Original Message-----

From: Thomas Thompson [<mailto:TKT@nrc.gov>]

Sent: Thursday, March 24, 2005 1:10 PM

To: McCumbee, William D

Subject: Possession limits for your NRC license 47-05972-02

(dkt. 03001142) MC 136224

I have reviewed your January 31, list of requested sealed sources and put together a possession list for your license which looks as though it would cover your needs. Please look at this list and indicate if this covers your request. (see attached file)

Thank you again.