

CALICHECK TEST KIT MODIFICATIONS

To the Editor: I have read with keen interest the article you published by Oswald et al. (1) describing modifications made to the Calicheck Test Kit, which would extend the range capability of the test. As one of the authors of a 1981 *JNMT* article (2) describing linearity testing by this technique, I was involved in the subsequent commercial production and distribution of the patented Calicheck kit. I appreciate the authors' insight into modifications that would allow for linearity testing down to 10 μCi . However, it left me thinking, "... well, if I have read the article and own a Calicheck Kit, now what?"

I thought your readers might be interested in knowing that the original Calicheck design was modified by the manufacturer in June 1990 to allow for linearity testing from several curies down to 10 μCi , with one

source and one series of readings. This was done by enlarging the size of the sixth tube so that it would fit over the first five tubes. Tubes could be used individually or in combination with the sixth tube, dramatically expanding the range of linearity testing with this product. In addition, a Calicheck Upgrade Kit was made commercially available so that the owners of kits with the original design could modify their kits to operate comparably.

Originally, the Calicheck kit evolved in response to requirements for linearity testing stated in the Nuclear Regulatory Commission's *NRC Regulatory Guide 10.8, Revision 1* issued in October 1980. Licensees who followed this Guide were required to test for linearity from the largest activity assayed in the dose calibrator down to the smallest doses administered to patients. At that time, the largest activity may have been a generator elution and the smallest dose may have been several hundred microcuries or even several millicuries, depending upon the licensee's program. In August 1987, the *NRC Regulatory Guide 10.8, Revision 2* was released, and it required linearity testing down to 10 μCi , with comparable requirements being published in *NRC Rules and Regulations, Title 10-Code of Federal Regulations-Part 35* (10CFR35).

In reaction to Revision 2, many users of the originally designed Calicheck kit adapted the use of their kits, using a high activity source to represent the largest activity they would likely utilize and a second lower activity dose that, when properly shielded, would cause the dose calibrator to display an activity of 10 μCi or less.

Use of the two sources was originally described in the owner's manual. However, several articles were written (3,4) noting that two sources were needed to cover the range of use, and there appeared to be a need for some careful consideration when using this procedure or the allowable error could be exceeded.

In response to these observations, the Calicheck kit was modified to allow a contiguous set of readings to be obtained from very high activity levels down to 10 μCi with just one source. As many as 11 readings are now available with the redesigned Calicheck kit or a modified original unit. The maximum allowable error has been recaptured with this change, without the need for two series of readings.

Hundreds of Calicheck kits have been sold since their original inception. The newly designed kit was advertised in the June 1990 issue of *JNMT*. Also, original purchasers of

the Calicheck kit were contacted by letter and advised that a kit modification was available. However, a number of Calicheck kits were sold through vendors who, until recently, had not publicized the availability of the Upgrade Kit. This may be why the Oswald et al. article was based on the original design of the Calicheck kit.

So, to answer my original question, "... now what?", a modification is and has been available to owners of the original Calicheck kit and it can be purchased directly from the manufacturer, Calicheck, or from many of the national nuclear medicine accessory suppliers.

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