



INSTRUCTIONS FILLING AND FINISHING OF TRITIUM CALIBRATOR LECTURE BOTTLES

THESE INSTRUCTIONS ARE TO BE AFFIXED IN THE LECTURE BOTTLE ASSEMBLY AREA.

The purpose of these instructions are to ensure that ^3H lecture bottles for tritium calibrators contain no more than 1 milliCurie of Tritium, and that both the bottle as well as the calibrator meet NRC requirements.

The following steps are to be followed:

1. Test lecture bottle to ensure freedom from leaks. Use N_2 and an overnight bubble test. Use only lecture bottles that have a volume of 424 cc.
2. Using the high vacuum pump, evacuate the lecture bottle.
3. Set up all equipment required for filling the lecture bottle and fetch the calibrator assembly. Notify the RSO and the Q/A Manager who is responsible for releasing the ^3H tank from the radiation cabinet.
4. The RSO, or authorized assistant, will bring out the master ^3H calibration gas tank, and supervise the operation of filling and assembly.
5. The RSO, or authorized assistant, will make required record entries on:
 - a. the radiation cabinet key log
 - b. the cabinet logfor relocation of the ^3H calibration gas master tank.

NOTE: Film badges should be worn, the use of a survey meter is not required.

6. The Q/A Manager (or the RSO) shall ensure that:
 - a. The lecture bottle will be supplied with label No. N032895-4 "Radioactive Material"
 - b. Label No. N032895-6 Shipping label
 - c. The technical manual for the customer has been assembled, including the Certificate of Gas Calibration standard
 - d. That the inventory sheet for the master cylinder for data entry is available.
7. The lecture bottle is to be filled to a pressure of 500 lbs/in² (+ 0 - 5 lbs/in²).

NOTE: The concentration of ^3H in the master tank is 69.4 mCi/m³, STP as of August 1996, and the volume of the lecture bottle is 424 cc. Thus, the quantity of ^3H contained in the lecture bottle is less than 1 mCi/m³ STP when filled to a pressure of 500 lbs/in² (34.01 Atmospheres) STP.

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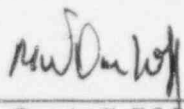
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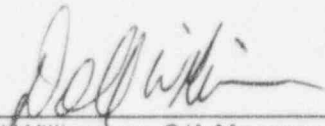
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8. An entry shall be made to the inventory sheet indicating withdrawal of 1 mCi (or less) from the tank. An entry shall be made of the tank pressure. Enter date of transaction.
9. Enter the information required onto the two labels, for the calibrator and the lecture bottle. Enter date. Make photocopies of these labels after entering the information. Distribute one copy to Administration and one copy to Quality Assurance.
10. Affix the labels and the serial number label to the calibrator and the lecture bottle.
11. Enter all pertinent data into the calibrator manual, and/or the Certificate of Gas Calibration Standard.
12. Provide a copy of the manual and/or the Certificate to the Q/A Manager and a copy to the administrative office for record keeping purposes.
13. If applicable, make test assembly by attaching the lecture bottle to the calibrator. Check for leaks, and, if no leaks are detected, then disassemble and prepare equipment for packaging and shipping. The lecture bottle must not be attached to the calibrator when it is shipped.
14. The ^3H master tank shall be returned to the radiation cabinet, and entries shall be made to the cabinet log, and to the key log.
15. Return the inventory sheet to the strong box and return the strong box to its storage location.
16. Clear the premises of all other equipment used for the filling of lecture bottles, returning the equipment to their proper storage location.
17. An entry consisting of date, activity, etc. shall be made on the package log.

September 25, 1996



M. W. Overhoff, RSO



Dell Williamson, Q/A Manager