

<p style="text-align: center;">University of Texas Southwestern Medical Center At Dallas Radiation Safety</p>	<p style="text-align: center;">Title: Medical Diagnosis Procedures Using ¹³³Xe Gas</p>	<p>Procedure No. 18 Date: May 26, 1996 Latest Revision: November 11, 2007 Page 1 of 2</p>
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I. Purpose

This procedure provides the necessary information for design criteria of an installation where ¹³³Xe gas will be used. This procedure also provides information to complete the application for Medical Diagnosis Procedures Using ¹³³Xenon Gas by qualified individuals or departments within the jurisdiction of UT Southwestern and associated hospitals, and to purchase, maintain, use, and dispose of ¹³³Xe gas for Human use. This procedure is in accordance with the interim ¹³³Xe use guide provided by the Texas Department of State Health Services.

II. Scope

Only individuals or departments who have applied for and have been issued a Human Use Sublicense with ¹³³Xe gas listed on the sublicense have the authorization to order and use ¹³³Xe for the purpose of diagnostic use in specifically approved locations on the UT Southwestern Campus and associated hospitals. To qualify for ¹³³Xe gas diagnostic procedures, the requested location must meet the criteria outlined in this procedure and the requirements of Appendix A, form RSF-003. The Radiation Safety Committee (RSC) reviews and approves or denies all applications for use of ¹³³Xe based on the submitted information.

III. Procedure

A. General Criteria

The following criteria shall be applied to determine which individuals or departments meet the necessary requirements and qualifications to hold a Human Use Sublicense for use of ¹³³Xe.

1. Any applicant shall meet all the requirements for obtaining a human use sublicense as outlined in Radiation Safety Procedure No. 2.
2. The room where ¹³³Xe procedures are to be performed must meet the following criteria:
 - a) The room must be a closed room with an exhaust system to direct air to the outside of the facility during periods when ¹³³Xe is used.
 - b) The room shall be exhausted at such a rate that it is at a negative pressure with respect to the adjacent rooms.
 - c) There should be no re-circulation of air to the remainder of the facility when ¹³³Xe is being used.
 - d) The exhausted air shall be released outside the facility at a point not normally accessible to personnel and not near any air intake of the facility ventilation system.

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3. The ¹³³Xe shall be collected and disposed of in the following manner.
 - a) The patient shall be required to exhale into a face mask or mouthpiece connected by a flexible hose that exhausts to a xenon trap collection system.
 - b) It is required that the trap collection system be monitored for xenon leakage. An automatic monitoring system with an alarm may be used for this purpose. When the filters no longer trap ¹³³Xe, they shall be replaced or otherwise made effective as prescribed by the manufacturer.
4. Exhaust flow rates from rooms where ¹³³Xe is used shall be measured at least once each year.
5. Trap collection systems shall be checked for proper operation at least once each month.

B. ¹³³Xe Medical Diagnosis Application

Individual and departmental applicants shall complete and submit to the RSC a Supplemental Application for Medical Diagnosis Procedures Using ¹³³Xe, form RSF-003 (Appendix A) or its equivalent. The form shall contain the following information.

1. Name of the Individual or Department, sub-license number, the room number and location, and the maximum activity per week.
2. A description of the method for administering the ¹³³Xe gas to the patient and the method to capture to exhaled gas. Include the method for testing the ¹³³Xe trap to ensure it is working properly or the make and model of the automatic monitoring system.
3. Describe the methods for exhausting the air from the facility during ¹³³Xe use including the method for prevention of exhaust re-circulation and airflow rates in and out of the room.
4. Describe emergency procedures for handling large accidental releases of ¹³³Xe gas for to largest activity handled. Include the amount of time the room will be required to be evacuated for exhaust purposes.

In addition, a Radioactive Room Use Application, RSF-005a or an equivalent form shall be submitted to the RSC. A diagram of the laboratory or rooms to include storage location, RAM use areas, waste storage locations, and all isotopes to be used or stored in the room shall be included on this form.