



US Department  
of Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

**Subject:** AVOIDING OR MINIMIZING ENCOUNTERS  
WITH AIRCRAFT EQUIPPED WITH  
DEPLETED URANIUM BALANCE WEIGHTS  
DURING ACCIDENT INVESTIGATIONS

**Date:** 12/20/84  
**Initiated by:** AWS-330

**AC No:** 20-123  
**Change:**

1. **PURPOSE.** This advisory circular provides information and guidance to individuals who come in contact with depleted uranium contained in aircraft control surfaces during accident investigations.
2. **RELATED READING MATERIAL.** Additional information on depleted uranium may be found in the maintenance manual of each affected aircraft and also in service information provided by the aircraft manufacturer.
3. **DISCUSSION.** For many years, aircraft manufacturers have used "depleted" uranium to balance ailerons, rudders, and elevators on certain jet aircraft and rotor blades on certain helicopters. Uranium is 1 1/2 times as dense as lead and is the heaviest naturally occurring metal. According to a 1983 McDonnell Douglas Customer Service First Quarter publication, only "depleted" uranium is used, which means it has been processed to remove most of its uranium 235, the most highly radioactive form used in nuclear powerplants. The remaining uranium 238 emits only low-level alpha radiation. While the depleted uranium normally poses no danger, it is to be handled with caution. The main hazard associated with depleted uranium is the harmful effect the material could have if it enters the body. If particles are inhaled or digested, they can be chemically toxic and cause a significant and long-lasting irradiation of internal tissue. Depleted uranium is slightly radioactive. To minimize radiation hazards, depleted uranium balance weights are 100 percent cadmium plated during the manufacturing process. If the cadmium plating is intact, normal handling of the parts is considered to be non-hazardous and no special precautions are recommended. The use of radioactive materials in many every day applications is not at all unusual. For example, tritium, a radioactive form of hydrogen, is used in self-luminous signs, such as exit signs, and watches. Thorium, which has a radiation activity level comparable to depleted uranium, is used in making gas mantels for lanterns, electronic equipment, and high-quality optical lenses for cameras and overhead projectors. Also, smoke detectors contain americium 241, a radioactive material.
4. **PRECAUTIONS.**
  - a. Avoid contact with balance weights using depleted uranium. On arrival at accident scenes of aircraft suspected of containing balance weights made of depleted uranium, determine if balance weights have been damaged or lost their cadmium plating coating. Request specialized assistance if balance weights have been damaged or lost their cadmium plating. No penetration of the plating is allowed.

b. Avoid breathing or swallowing particles of balance weights found damaged or with cadmium plating damaged or lost.

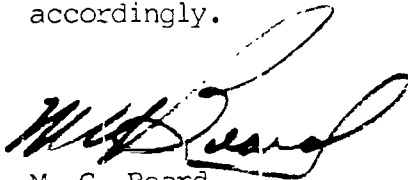
c. If it becomes necessary to handle balance weights, the following precautions should be observed:

(1) Personnel handling the balance weight should wear gloves.

(2) Industrial eye protection should be worn.

(3) Respirator mask should be worn to ensure no radioactive dust particle ingestion.

d. Gloves, wrapping material, wiping cloths, respirator filters, or any other articles used in the handling of damaged balance weights should be discarded and appropriately labeled as radioactive waste and disposed of accordingly.

A handwritten signature in black ink, appearing to read "M. C. Beard", is written over the printed name.

M. C. Beard  
Director of Airworthiness