



**Environmental Health & Safety
and Risk Management**

P.O. Box 758145, Fairbanks, Alaska 99775-8145

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Director
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission

Washington, D.C. 20555-0001

To Whom it May Concern,

A collection of self-luminous aircraft gauges was recently brought to my attention as Radiation Safety Officer for the University of Alaska Fairbanks (UAF). These gauges have been stored in the Aviation Department of the Tanana Valley Campus (a branch of UAF) since perhaps the 1970s (the actual dates of acquisition are unknown).

Upon receiving word of these devices on May 26, 2009, I went to inspect the gauge collection. I surveyed each device in the cabinet (~100) and retrieved 57 devices from the collection that exhibited radioactivity when surveyed with a Geiger counter and/or lacked covers on the dial faces. Some of the devices lacking covers may not contain radium paint (activity at surface approximated background levels at 0.03 mR/h). However, I felt it was best to remove them from that location just in case because the paint had a faintly orange tinge to it, similar to ones that did exhibit activity. There were three gauges which exhibited significant levels of radiation and were damaged or dismantled. One was a tachometer that lacked a cover (>1000 mR/h with a thin-window pancake probe), another had a cracked cover (12 mR/h) and a third device was sealed but contained loose powder (4.6 mR/h). Each of the devices was logged and bagged, placed in a metal drum, and stored in the UAF Radioactive Materials bunker. We are investigating disposal options, although some of them appear to have come from the military. The tachometer was placed in our lead safe, due to the amount of activity from this device.

After retrieving the devices, I surveyed the shelves on which the devices had been stored using a Geiger counter with a pancake probe, and did not observe any readings above background (0.01-0.03 mR/h). I conducted wipe tests of the shelves (entire surface of each shelf) prior to washing with water, after washing with water, and after washing with a cleaner. Wipes were counted on a Beckman LS6000 SE liquid scintillation counter on a wide open channel. The results were as follows:

Location	Before washing (cpm)	After water wash (cpm)	After cleaner wash (cpm)
Blank	267	66	--
Shelf 1	1,324	78	71
Shelf 2	1,551	184	100
Shelf 3	2,103	175	87
Shelf 4	116,703	891	75

We do not believe that this contamination extended to other areas, as the gauges were in storage. I have now taken possession of the dismantled gauges and will be investigating disposal options. I also took possession of the intact gauges that exhibited radioactivity so that they cannot be dismantled and/or permitted to deteriorate to the point where radioactivity might be released.

Sincerely,

**Tracey A. Martinson, Ph.D.
Radiation Safety Officer
Industrial Hygienist**