

**Adams, Craig L Lt Col AFMSA/SG3PB**

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**From:** Rachel Browder [Rachel.Browder@nrc.gov]  
**Sent:** Friday, October 10, 2008 4:16 PM  
**To:** Adams, Craig L Lt Col AFMSA/SG3PB  
**Cc:** Rodgers, Robert Maj AFMSA/SG3PB; Jack Whitten; Chuck Cain; J Bruce Carrico  
**Subject:** RE: Discovery of Aircraft Dial

Lt. Col. Adams,

I've received a response back from HQs regarding the aircraft dial from the MiG-21 that was identified by US Customs and Border Patrol in the household goods of an AF personnel.

The individual could possess the radium-226 aircraft dial under the general license in 10 CFR 31.12(b); however please note that the regulations in 10 CFR 31.12(d) prohibits import under the general license - which was an attempt to try to keep this type of thing from happening, among others from happening! So you may want to take note for future dissemination of information to personnel returning to the US.

However, now that the AF has the device, and since the AF holds a specific license, then the AF is not exempt from Part 30 requirements as provided under 31.12(b). (However, it does not appear to be Reportable under 10 CFR 30.50 or other regs.)

The notification required under 31.12(c)(1) was intended to be based on very general observation where there might be apparent damage, perhaps flaking, or something like that - it doesn't sound like there was a readily visible problem with this item. Nevertheless, due to discovery of surface contamination by the AF; then the NRC needs to be Notified under 10 CFR 32.12(c)(1), within 30 days.

Since you contacted the Regional Office immediately, (which is appreciated) and followed up with the attached email, that is sufficient. I forwarded your email to FSME and they stated that was sufficient to meet the notification requirement in 10 CFR 31.12(c)(1).

Do you know whether the contamination might have been due to radon plating vs. radium?

Also, the regulation does not necessarily require that this item be disposed of, so there is no apparent health and safety issue associated with this device.

I hope this helps to explain the new regulations for radium-226 gauges and dials. I appreciate your patience while we closely analyzed this against the regulations and statement of considerations.

If you have any questions, please let me know.  
Sincerely,  
Rachel

-----Original Message-----

**From:** Adams, Craig L Lt Col AFMOA/SG3PB [mailto:Craig.Adams@pentagon.af.mil]  
**Sent:** Friday, September 19, 2008 6:20 PM  
**To:** Rachel Browder  
**Cc:** Rodgers, Robert Maj AFMOA/SG3PB  
**Subject:** Discovery of Aircraft Dial

Ms. Browder

I left a message on your office phone and was able to speak with Mr. Chuck Cain (DD, NMS) regarding the discovery of a foreign aircraft dial in the moving boxes of a service member who arrived at Hickam AFB, HI. Mr. Cain assured me the event didn't need to be reported to the H.O.O. Based on the details below, please advise.

Template  
FSME-011

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SUNSI Review Complete

RIDS CODE  
FSME-10

DETAILS:

1. Date/time: 19Sep08/10:45 HST
2. Item: Wall plaque containing an artificial horizon (dial) from a MiG-21
3. Events: The plaque was identified by US Customs and Border Patrol during a routine radiation scan of an inbound household good shipment. The item had been removed from the box by Customs agents, but was still wrapped in the original paper.
4. Assessment: The AF scanned the dial with an ADM-300 w/ and w/o alpha probe and a SAM-935. No removable contamination was found on the outside of the wrapping paper. The dial was not broken. The surface of the glass was wiped and ~50 cpm was measured. Approximately 8.0 mR/hr was measured at 1 inch from the dial. Ra-226 was identified with the SAM-935.
5. On-Site Action: After finding surface contamination, each item that had occupied the box with the dial was checked. No contamination was found therein or on individuals in the immediate area. US Customs released the item to the AF.
6. RIC Action: Temporary authorization was given to the reporting AF unit to take custody of the dial. They were instructed to have the swipes sent for laboratory analysis. The unit was instructed to bag and secure the dial. Statements from the previous owner of the device were requested. The unit will make arrangements to have the device properly disposed via 88 ABW/CEV (Wright Patterson). The RIC (Lt Col Adams) called the NRC (Mr. Cain) at 18:00 on 19 Sep 08.

v/r

CRAIG L. ADAMS, Lt Col, USAF, BSC  
Chief, Radiation Programs  
Chief, AF Radioisotope Committee Secretariat AF Medical Support Agency (SG3PB) 1400 Key  
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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS UNITED STATES AIR FORCE  
WASHINGTON DC

24 Oct 08

MEMORANDUM FOR U.S. NUCLEAR REGULATORY COMMISSION  
ATTN: MR. ROBERT LEWIS  
DIRECTOR OF THE OFFICE OF FEDERAL AND STATE  
MATERIALS AND ENVIRONMENTAL MANAGEMENT PGMS  
WASHINGTON DC 20555-0001

FROM: USAF RADIOISOTOPE COMMITTEE  
AFMSA/SG3PB  
1400 KEY BLVD, STE 400  
ROSSLYN VA 22209-1554

SUBJECT: Report of Damage to Self Luminous Product Containing Radium-226, USAF  
License No. 42-23539-01AF, Docket No. 030-28641

This is a follow-up as it pertains to our report made on 19 Sep 08 to NRC Region-IV (Ms. Rachel Browder) on the discovery of an artificial horizon (dial), affixed to a souvenir plaque, at Hickam AFB, Hawaii. Ms. Browder informed us she passed the report on to your office. Please see the attached e-mail for details.

Per the report, it was discovered the dial, although not visibly damaged, had released Radium-226 (Ra-226) on the surface of the plaque to which it was affixed. Contamination was limited to the plaque and it was processed for disposal at our permitted facility at Wright Patterson AFB, OH. No further action was required or taken.

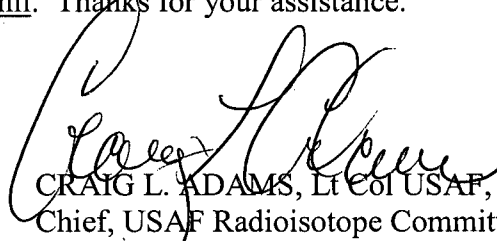
On 24 Sep 08, another plaque (with dial) was found at Patrick AFB, Florida. It was of the same origin and it too, although not visibly damaged, had released Ra-226 on the surface of the plaque to which it was affixed. Once again contamination was limited to the plaque and it was determined between 128-351 dpm/100 cm<sup>2</sup> of removable alpha/beta contamination was present. As with the other plaque, it was processed for disposal at Wright Patterson AFB, OH.

Based upon the discovery of the second plaque, we initiated an investigation to determine the extent of the situation. We have reason to believe seven plaques were made containing similar dials at a singular location at Nellis AFB, Nevada. All but two have been collected. There is no data available at this time to indicate the other plaques were contaminated. Arrangements have been made to collect the remaining two plaques, have them evaluated and properly disposed as necessary.

On 7 Oct 08, an analysis of the location where the plaques were constructed was made. There was no evidence of Ra-226 contamination.

Air Force Instruction 40-201, *Managing Radioactive Material in the US Air Force*, prohibits the taking of self luminous products containing Ra-226 and using them in this manner. Possession of such dials is also restricted to 10 CFR 31.12 conditions. All parties involved in this event have been counseled and our office is reminding all bases, via an article in our Bioenvironmental Engineering newsletter, of these facts. Such will also be discussed during our next US Air Force Radioisotope Committee meeting, attended by the NRC.

We are confident this matter will be satisfactorily closed in the next 30 days. This letter is being sent to you by e-mail and will be followed by a hard copy in the mail. If required by 10 CFR 31.12, or requested by your office, additional reports will be provided. If you desire additional information, please don't hesitate to contact my action officer Capt Clay Roberts at (703) 588-0399, [clay.roberts@pentagon.af.mil](mailto:clay.roberts@pentagon.af.mil). Thanks for your assistance.



CRAIG L. ADAMS, Lt Col USAF, BSC  
Chief, USAF Radioisotope Committee Secretariat  
Air Force Medical Support Agency  
Office of the Surgeon General

Atch:

US-NRC, Region IV e-mail, 19 Sep & 10 Oct 08

cc:

HQ AFIA/SOI (Lt Col Bias)

US-NRC, Region IV (Ms. Browder)