



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

July 7, 2017

MEMORANDUM TO: File

FROM: Jeffrey A. Whited, Project Manager */RA/*  
Materials Decommissioning Branch  
Division of Decommissioning, Uranium Recovery,  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: Letters from the State of Michigan re: Non-Military Radium  
Program

Enclosed with this memorandum is information provided to the U.S. Nuclear Regulatory Commission (NRC) staff in the Regional Offices and the Office of Nuclear Materials Safety and Safeguards (NMSS) by the State of Michigan. This information was provided as part of the non-military radium program that is outlined in Commission SECY-14-0092, SECY-16-0020, and SECY-17-0026.

Specifically, the letters provide information regarding a previous effort conducted by the State of Michigan to identify aircraft instrumentation repair stations in the state that might be contaminated through the use of Radium-226. Radium-226 was commonly used for its radio-luminescent properties on aircraft dials and gauges. The letters also provide information on clean-up activities conducted at the sites.

DOCKET NO.: 03038985

CONTACT: Jeffrey Whited, NMSS/DUWP  
(301) 415-4090

Enclosures:

1. Letter from U.S. Department of Transportation Federal Aviation Administration to Mr. Thomas Dykstra, Michigan Division of Radiological Health Re: Information Concerning Aircraft Instrumentation Repair Stations
2. Aircraft Instrument Update: Summary of Discussions and Findings

DISTRIBUTION:  
DUWP r/f

**ADAMS Accession No.: ML16288A777**

**OFFICIAL RECORD COPY**

Aircraft Instrument Update  
Region II

July 10, 1992

All facilities have had on-site visits and initial surveys.

This is a summary of the findings and discussions.

Aerodata Aircraft Instrument Services, Inc., Ypsilanti. Visited by Dykstra and Bilicki. Facility believed they had no radioactive instruments. Our survey found one altimeter face containing radium in a plastic box. Facility indicated they would dispose of entire contents of box. Normal trash.

Astro Instrument, Inc., Detroit. Visited by Dykstra and Ferris. Facility recognized that they had many radioactive instruments, many faces, and various pointers. Had already obtained a microR/hr meter for surveying. According to owner during a post-survey telephone conversation, a broker for surplus aircraft parts has been contacted and it is likely that radioactive gauges and parts will be sold and shipped overseas.

Beacon Instrument Service, Inc., Detroit City Airport. Visited by Dykstra and Ferris. Facility recognized that they had many radioactive instruments (completely assembled), many faces, and many pointers. He is sharing the microR/hr meter with Astro Instruments. We spend a couple of hours beginning the sorting process. Has several cardboard boxes and paper envelopes which are likely to be contaminated. The landlord (Butler Aviation) and the city have apparently indicated that all radioactive materials must be removed from the site. Beacon Instrument owner has a shed behind his house (he says he has a large open area, a field) in which he plans to store the gauges, faces, and pointers. They will be double bagged in plastic bags. He will need help in finding a means of disposal.

NC Servo Technology, Westland. Visited by Dykstra and Bilicki. Facility believed they had no radioactive items. Our survey found several gauges (less than 10), several of which belong to customers. This facility appears to have contamination: a closet which has higher than normal background and several work surfaces with easily detectable areas of contamination. Facility has been instructed to perform general housecleaning in the closet using rubber gloves and damp cloths to minimize dust. They are going to attempt to wipe clean the work surfaces. Assistance for follow-up survey of the work surfaces has been promised. May have to remove and dispose of parts of the work surfaces. The contaminated work surfaces are wood and may have radium paint spills from a previous owner. The contamination appears to be fairly localized. May need assistance in disposal of contaminated surfaces.

Metro Aircraft Instruments, Inc., Pontiac. Visited by Dykstra. Facility indicated that they knew of radium problem many years ago. They have had radiation detection equipment for years. No radioactive materials were found during our survey of the facility.

Sundog Electronics, Inc., Ypsilanti. Visited by Dykstra and Bilicki. 3 radioactive gauges found. They are functional and are being used in testing equipment. No action is anticipated for disposal of these gauges.

Superior Instrument Service, Inc., Pontiac. Visited by Dykstra (this is the initial facility). According to call from owner, sorting and bagging has been completed. Due to pressure from landlord, he needs to move materials off the airport property. He is building a small storage area in his garage at home made of solid concrete block. Storage area will be vented to outside with duct-work and fan. He will need assistance in disposal of his radioactive items.

Yankee Aircraft Museum, Ypsilanti. Visited by Dykstra and Bilicki. Although not on list of facilities, the two other facilities in Ypsilanti indicated we should visit this facility. They rebuild old wartime aircraft. We surveyed their inventory and found less than 10 radioactive gauges (6-8). Individuals were surprised and very cooperative. They indicated they will obtain a meter and will check all incoming donations. No further radioactive gauges will be accepted or installed. At this time, they are not planning to remove any radioactive gauges from aircraft (we did not check for any). They will dispose of current inventory of radioactive gauges in normal trash (one per week).



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

DETROIT FLIGHT STANDARDS DISTRICT OFFICE  
Willow Run Airport - East Side  
8800 Beck Road  
Belleville, Michigan 48111

April 21, 1992

Mr. Thomas M. Dykstra  
Health Physicist  
Investigation and Compliance Section  
Division of Radiological Health  
Department of Public Health  
1897 N. Perry Street  
Pontiac, Michigan 48340

RECEIVED  
Michigan Department of Public Health

APR 30 1992

BUREAU OF ENVIRONMENTAL &  
OCCUPATIONAL HEALTH - DRH

Dear Mr. Dykstra:

In response to your April 9, 1992, letter, the following information is provided concerning the aircraft instrument repair stations in our area.

- |   |   |
|---|---|
| 1. Aerodata Aircraft Instrument<br>Services, Inc.<br>2669 N. I-94 Service Dr.<br>Ypsilanti, MI 48198<br>(313) 484-3880              | 5. Metro Aircraft<br>Instruments, Inc.<br>Oakland-Pontiac Airport<br>2135 Airport Road<br>Waterford, MI 48327<br>(313) 666-3670 |
| 2. Astro Instrument, Inc.<br>11496 Portlance<br>Detroit, MI 48205<br>(313) 839-9133   | 6. Sundog Electronics, Inc.<br>Willow Run Airport<br>Ypsilanti, MI 48198<br>(313) 483-6850                                      |
| 3. Beacon Instrument<br>Service, Inc.<br>Detroit City Airport, Bay 9<br>Detroit, MI 48213<br>(313) 526-6040                         | 7. Superior Instrument<br>Service, Inc.<br>6544 Highland Road-ADI<br>Waterford, MI 48327<br>(313) 666-3450                      |
| 4. NC Servo Technology<br>d/b/a Great Lakes Instrument<br>Service, Inc.<br>38424 Webb Drive<br>Westland, MI 48185<br>(313) 721-5666 |   |

This is an up-to-date listing of instrument shops involved with the radium equipment you're concerned with.

*2-10-92 J.C. Smith*

*- is for other parts of Mich.*

\*\*\*\*\*  
Lee Turbett  
Aero Services International, Inc.  
Tri-City Airport  
Freeland, MI. 48623

Telephone: 517-695-2555  
Limited electronic instrument repair.  
\*\*\*\*\*

John Ledford  
Air Security, Inc.  
7249 S. Shore Dr.  
Bear Lake, MI. 49614

Telephone: 616-864-3435  
Instrument repair, has dials and pointers in his shop.  
\*\*\*\*\*

Mark W. Sawmiller  
Eagle Flight Instruments  
16598 Chandler Road  
E. Lansing, MI. 48823

Telephone: 517-351-0224  
Instrument repair  
\*\*\*\*\*

Dennis DeCook  
General Aviation, Inc.  
Capital City Airport  
Lansing, MI. 48906

Telephone: 517-321-7000  
Limited electronic instrument repair.  
\*\*\*\*\*

Virgil Cox  
JET Electronics and Technology, Inc.  
5353 52nd. Street SE  
Grand Rapids, MI. 49508

Telephone: 616-949-6600  
Instrument manufacturer and repair facility.  
\*\*\*\*\*

Robert Starback  
Kal-Aero, Inc.  
5605 Portage Rd.  
Kalamazoo, MI. 49002

Telephone: 616-343-2548  
Instrument repair.

\*\*\*\*\*

Thomas D. Inman  
Lansing Community College  
Aviation Technology Center  
3428 W. Hanger Drive  
Lansing, MI. 48906

Telephone: 517-483-1406  
No instrument repair. Avionics/instrument instructor.

\*\*\*\*\*

Kenneth Malone  
Mayday Avionics, Inc.  
5500 44th. Street SE  
Grand Rapids, MI. 49512

Telephone: 616-957-4920  
Instrument repair.

\*\*\*\*\*

Stephen F. Schultz  
Mich. DOT Aeronautics Commission  
Electronics Facilities Sec.  
Capital City Airport  
Lansing, MI. 48906

Telephone: 517-373-8847  
Limited electronic instrument repair.

\*\*\*\*\*

John Sersich  
Superior Aviation, Inc.  
105 Kent St.  
Iron Mountain, MI. 49801

Telephone: 906-774-0400  
Limited electronic instrument repair.

\*\*\*\*\*

Dick Pierson  
Simmons Airlines, Inc.  
198A Airport Drive  
Negaunee, MI. 49866

Telephone: 906-475-7821  
Instrument repair.

STATE OF MICHIGAN



JOHN ENGLER, GOVERNOR  
DEPARTMENT OF PUBLIC HEALTH

3423 N. LOGAN/MARTIN L. KING JR., BLVD.  
P.O. BOX 30195, LANSING, MICHIGAN 48909

Vernice Davis Anthony, Director

DIVISION OF RADIOLOGICAL HEALTH

June 8, 1992

Radiological Health Notice 92-1:     POTENTIAL RADIUM CONTAMINATION FROM  
AIRCRAFT INSTRUMENTS, INSTRUMENT FACES  
(DIALS), AND INSTRUMENT POINTERS.

Addressees:

All aircraft instrument repair stations within Michigan.

Purpose:

This notice is to alert aircraft instrument repair stations of a potential health hazard from exposure to radium, a radioactive material. It is expected that facilities will evaluate their own situation, contact the Division of Radiological Health, and take appropriate action to reduce radiation exposure to personnel and prevent the spread of radioactive contamination.

Description of Circumstances:

In March 1992, it came to our attention that an aircraft instrument repair station in Michigan possessed large quantities of old instrument faces (dials) and pointers. This station had recently sent some of these items to a refinisher, but they were returned without being repainted. A notice from the refinisher indicated "Caution: Radioactive Material." This warning prompted an employee of the repair station to contact the Division of Radiological Health.

An on-site investigation was conducted by a health physicist from this division. Our investigation identified a large number of items, perhaps thousands, emitting radiation. General radiation levels within the facility were 3 times higher than normal background levels. Many of the radioactive items were stored together in drawers. The constant rubbing and bumping of the items against each other had caused a fine radioactive dust to form. Such radioactive dust can contaminate anything with which it comes in contact. Items which, at the time of manufacture, did not contain radium, but which were stored in the same drawers, were also found to be contaminated with radium dust. Decontamination can be a very difficult process. Porous or wooden objects, such as desk drawers, often cannot be sufficiently decontaminated and must be properly disposed of as radioactive waste.



### Discussion:

Radium is a naturally occurring radioactive material. One use for radium was in fluorescent paint for luminous aircraft instruments. The use of radium for this purpose generally ended several decades ago.

Radium has a half-life of about 1600 years. This means that after 1600 years, half of the radium will have decayed into another material. Unfortunately, radium decays into other radioactive materials, one of which is radon, a radioactive gas. Radon is now considered by the U.S. Environmental Protection Agency (EPA) to be one of the major indoor air pollution problems. According to the EPA, radon is a major cause of lung cancer deaths in the United States. When radon decays, it becomes radioactive bismuth, lead, and polonium. All three of these are radioactive solids and become part of the dust in the facility. Radium and most other radioactive materials are particularly hazardous if ingested or inhaled as a dust.

### Recommendations:

The Division of Radiological Health is now recommending that each aircraft instrument repair station do the following:

1. Evaluate its inventory of dials, pointers, and related parts to determine the extent of items potentially contaminated with radium.
2. If there appears to be a possibility that radium is in your possession in the form of old luminous dials, pointers and similar components, contact the Division of Radiological Health at 517/335-8220 before proceeding to the next steps.
3. With the assistance of the Division of Radiological Health or a qualified radiation consultant, try to isolate radium-containing items. Disposable gloves should be used when handling the items. Items should be placed into plastic bags to reduce the chance of further contamination. MINIMIZE CREATING ANY DUST. Containers which were used to store radium-containing items should be considered to be contaminated. Items intended for decontamination should be stored separately in their own plastic bags to minimize exposure to anyone who may try to decontaminate them at a later time.
4. Items containing radium or contaminated with radium should be stored, pending proper disposal, in a secure location away from personnel. Concrete blocks provide good shielding.
5. Personnel handling radium-bearing items should be encouraged to wash their hands often and especially thoroughly before eating. Ingestion pathways should be minimized. No food or beverages should be permitted within the premises until the facility is determined to be free of contamination.
6. Disposal of radioactive materials must be done in accordance with legal requirements. Disposal into sanitary landfills is not normally permitted.
7. Persons possessing radium must register the material with the Michigan Department of Public Health, Division of Radiological Health.



Additional Item for Consideration:

Currently, there is no low-level radioactive waste disposal site in Michigan. There are several disposal sites in the U.S. which can take radium, however, all but one is refusing to take any radioactive material from Michigan. Envirocare, in Clive, Utah, can and will accept the radium for a reasonable fee. There are several costs associated with the disposal. One cost is for packaging and transportation. Another potential cost which may be incurred is for a laboratory analysis of the waste to determine the amount of radium present and to assure that there are no other hazards in the waste. This could be expensive. A facility with radium may wish to consider merging its waste together with waste from other facilities and then splitting the cost of a single laboratory analysis rather than each facility paying for its own analysis. A list of several companies offering radium disposal services is attached for your convenience.

Response:

Within fifteen (15) days, each aircraft instrument repair station receiving this notice should contact the department and indicate whether:


- 1) they have radium,
- 2) they might have radium and need assistance in making a determination,  
or
- 3) they definitely do not have radium.

Contacts and questions regarding this matter should be addressed to:

Investigation and Compliance Section  
Division of Radiological Health  
Michigan Department of Public Health  
3423 N. Logan/Martin Luther King, Jr., Blvd.  
P.O. Box 30195  
Lansing, MI 48909  
517/335-8220

Attachment (list of radium disposal services)

APPROVED:

  
George W. Bruchmann, Chief  
Division of Radiological Health

DATE: 6-8-92

MICHIGAN DEPARTMENT OF PUBLIC HEALTH  
DIVISION OF RADIOLOGICAL HEALTH

COMPANIES PROVIDING RADIUM DISPOSAL SERVICES

ADCO SERVICES, INC.  
17650 Duvan Drive  
Tinley Park, Illinois 60477  
(312) 429-1660

APPLIED HEALTH PHYSICS  
Radwaste Division  
2986 Industrial Blvd.  
Bethel Park, Pennsylvania 15102  
(412) 563-2242

NSSI/Recovery Services Inc.  
P. O. Box 34042  
Houston, Texas 77234  
(713) 641-0391

RAMP INDUSTRIES, INC.  
1127 West 46th Ave.  
Denver, Colorado 80211  
(303) 480-1509

SCIENTIFIC ECOLOGY GROUP, INC.  
P. O. Box 2530  
1560 Bearcreek Road  
Oak Ridge, Tennessee 37830  
(615) 481-0222

TN TECHNOLOGIES INC.  
P. O. Box 800  
2555 North I. H. 35  
Round Rock, Texas 78664  
(512) 388-9100

U. S. ECOLOGY, INC.  
P. O. Box 7246  
Louisville, Kentucky 40257-0246  
(502) 426-7160

This list is not intended as an endorsement of these companies. It is provided upon request to Michigan citizens. Other companies may exist which do not appear on this list, and any information regarding them is welcome.