

AIRBORNE RADIOACTIVITY SURVEY OF THE WEST LONETREE
AREA, UINTA COUNTY, WYOMING

By J. L. Meuschke and R. M. Moxham

The accompanying map shows the results of an airborne radioactivity survey in an area of 154 square miles in Uinta County, Wyoming. The survey was made by the U. S. Geological Survey, October 23, 1952, as part of a cooperative program with the U. S. Atomic Energy Commission.

The survey was made with scintillation-detection equipment mounted in a Douglas DC-3 aircraft. Parallel traverse lines, spaced at quarter-mile intervals, were flown approximately 500 feet above the ground. Aerial photographs were used for pilot guidance, and the flight path of the aircraft was recorded by a gyro-stabilized, continuous-strip-film camera. The distance of the aircraft from the ground was measured with a continuously recording radio altimeter.

At 500 feet above the ground, the width of the zone from which anomalous radioactivity is measured varies with the intensity of radiation of the source and, for strong sources, the width would be as much as 1,400 feet. Quarter-mile spacing of the flight paths of the aircraft should be adequate to detect anomalies from strong sources of radioactivity. However, small areas of considerable radioactivity midway between flight paths may not be noted.

The approximate location of one radioactivity anomaly is shown on the accompanying map. The plotted position of the anomaly may be in error by as much as a quarter of a mile owing to errors in the available base maps or to the existence of areas on the base maps up to several square miles in which it is impossible to find and plot recognizable landmarks.

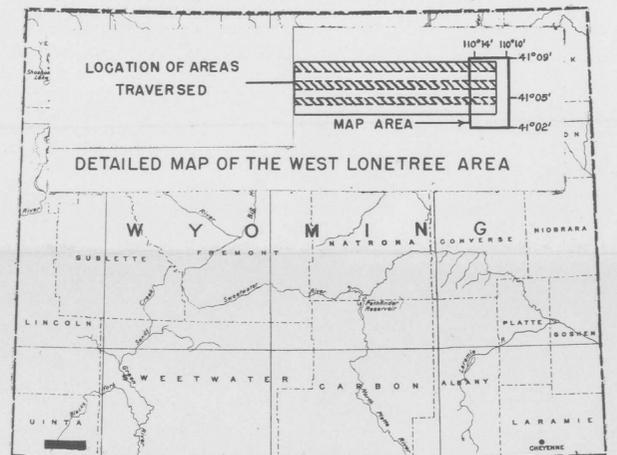
The radioactivity anomaly shown on the accompanying map cannot be interpreted in terms of either the radioactive content or the extent of the source materials. The present technique of airborne radioactivity measurement does not permit distinguishing between activity due to thorium and that due to uranium. An anomaly, therefore, may represent radioactivity due entirely to uranium, or to thorium, or to a combination of uranium and thorium.

A radioactivity anomaly that is recorded by airborne measurements at 500 feet above the ground can be caused by:

1. A moderately large area in which the rocks and soils are slightly more radioactive than the rocks and soils of the surrounding area.
2. A smaller area in which the rocks and soils are considerably more radioactive than rocks and soils in the surrounding area.
3. A very small area in which the rocks and soils are much more radioactive than the rocks and soils of the surrounding area.

Any particular anomaly, therefore, may represent either slightly greater-than-average radioactivity over an area of a few thousand square feet, or high radioactivity over an area of a few hundred square feet. The radioactivity anomaly shown on the accompanying map indicates a locality of more-than-average radioactivity and, therefore, suggest areas in which uranium or thorium deposits are more likely to occur.

This map has been released without editorial and technical review for conformity with Geological Survey standards.



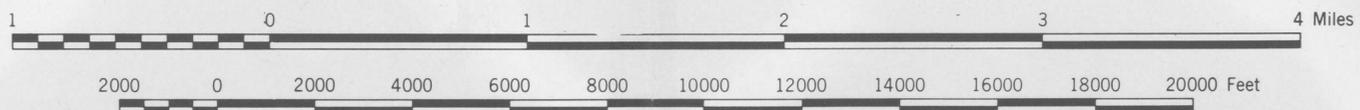
INDEX MAP OF WYOMING SHOWING LOCATION OF THE
WEST LONETREE AREA

EXPLANATION

- 23-10.0 ANOMALY: greater-than-average radioactivity: reference number indicates flight line and position.
- BOUNDARY OF AREA TRAVERSED

Photo Mosaic
Aero Service Corp.

AIRBORNE RADIOACTIVITY SURVEY OF THE WEST LONETREE AREA, UINTA COUNTY, WYOMING



PLEASE REPLACE IN POCKET
IN BACK OF BOUND VOLUME

MARCH 1953

40619

(200)
T67mm
no. 611

GEOLOGICAL SURVEY
LIBRARY
MAR 27 1978
DENVER