

An Aerial Radiological Measuring Survey (ARMS) of the Cincinnati area was made for the Civil Effects Test Operations, Division of Biology and Medicine, U. S. Atomic Energy Commission, by Edgerton, Germeshausen & Grier, Inc. (EG&G), between Nov. 3 and Nov. 24, 1962.

The survey was part of a nationwide program to measure the present environmental levels of gamma radiation. Approximately 7600 traverse miles were flown, at an altitude of about 500 ft above the ground, in the area that consists of a 100-mile square which is centered on Fernald, Ohio. The northeast quadrant, previously surveyed by the U. S. Geological Survey, was not resurveyed. The EG&G ARMS-II instrumentation was used in the survey.

The data are presented as aeroradioactivity units, or areas with similar gamma-radiation counting rates at 500 ft, at two map scales: (1) generalized at about 1:1,000,000 and (2) detailed at 1:250,000. The maximum aeroradioactivity in most of the area is less than 800 counts/sec. Maximum counting rates of more than 800 but less than 1200 counts/sec occur in about one-eighth of the area.

Aerial measurements of ground radioactivity in the ARMS-II Cincinnati area were consistent with what was expected, considering the geology of the area. The glaciated part of the area north of the Ohio River was generally less radioactive than the area south of the river. Artificial radionuclides were probably present in only small quantities, for background gamma radioactivity was less than 200 counts/sec in several places.