

1 May 1982

Fact Sheet



Defense Nuclear Agency
Public Affairs Office
Washington, D.C. 20305

OPERATION ARGUS

ARGUS was the designation given to the three high-altitude nuclear test shots conducted by the United States in the South Atlantic Ocean in August and September 1958. The ARGUS shots were conducted to test the Christofilos theory, which argued that high-altitude nuclear detonations would create a radiation belt in the upper regions of the Earth's atmosphere. It was theorized that the radiation belt would have military implications, including degradation of radio and radar transmissions, damage or destruction of the arming and fuzing mechanisms of ICBM warheads, and endangering the crews of orbiting space vehicles that might enter the belt.

The tests were conducted in complete secrecy and were not announced until the following year. The organization conducting these tests was Task Force 88, a naval organization consisting of nine ships and approximately 4,500 men. A few specialists from the other services and the Atomic Energy Commission and their contractors were with the fleet. Coordinated measurement programs using satellite, rocket, aircraft, and surface stations were carried out by the services and other government agencies and contractors throughout the world. The ships of Task Force 88 were the antisubmarine carrier USS Tarawa (CVS-40), the destroyers USS Bearss (DD-654) and USS Warrington (DD-843), the destroyer escorts USS Courtney (DE-1021) and USS Hammerberg (DE-1015), the fleet oilers USS Neosho (AO-143) and USS Salamonie (AO-26), the missile trials ship, USS Norton Sound (AVM-1), and the seaplane tender USS Albemarle (AV-5).

The low-yield (1- to 2-KT) devices were lifted to about a 300-mile altitude by rockets fired from the ship, Norton Sound. The detonations occurred at such distances above the Earth that there was no possibility of exposure of task force personnel to ionizing radiation.

Of the 264 radiation-detection film packets distributed to the task force, 21 had indications of radiation exposure, but the highest exposure recorded by an individual's packet was 0.010 roentgen (R), so low as to be negligible. The highest exposure recorded, 0.025 R, was by a control film packet. Control film packets were located in radiation-free areas within the ships. Even this reading was so low that it could have been spurious or the result of natural background radiation. In any event, both readings were below the accuracy limit of the film, developing system, and densitometers used.

The results of the ARGUS operation proved the validity of the Christofilos theory. The establishment of an electron shell derived from neutron and beta decay of fission products and ionization of device materials in the upper fringe of the atmosphere was demonstrated. The operation not only provided data on military considerations but also produced a great mass of geophysical data, pure scientific material of great value.

* From 1945 to 1962 the United States conducted several series of underwater, *
* surface, and above-surface nuclear tests. The Defense Nuclear Agency (DNA) *
* was, in 1978, assigned as Department of Defense's (DoD) Executive Agent to *
* conduct a program to identify DoD participants, determine radiation doses, *
* and write histories of the series. This fact sheet summarizes information *
* on OPERATION ARGUS, one of those test series. Further information can be *
* obtained from DNA Report #6039F. *
