RAAF INVOLVEMENT IN NUCLEAR TESTING

Between 1952 and 1963 the British Government, with the agreement and support of the Australian Government, carried out nuclear tests at three sites in Australia—the Monte Bello Islands off the Western Australian coast, and at Emu Field and Maralinga in South Australia. This series of tests was designed to meet a technical and scientific requirement of the UK Ministry of Supply, in support of Britain's nuclear weapons program. As directed by the Australian government, the RAAF provided aircraft and personnel along with the other Services to support the British-led activities.

Operation Hurricane was the first test conducted at Monte Bello Islands on 3 October 1952. To obtain atmospheric samples, five RAAF Lincoln aircraft from No 82 Wing, each fitted with four collecting canisters, conducted simultaneous flights across the probable path of the resultant cloud. Since there was no intimation of the possibility of any contamination taking place during the course of these flights, and because of the expectation that any exposure if at all, would be very low, no protective measures had been taken.

Five Dakota aircraft from No 86 Wing provided daily logistics support to Broome, and then to Onslow for security patrols, ferry flights and monitoring flights for radio-active fallout. Two of the Dakotas were fitted with ionisation chambers for radio-activity monitoring and carried a scientist on each sortie. Reports indicated that these flights showed no deposition of fission products on the mainland.

Even before Operation Hurricane, the need for a land test site had been realised and a suitable location selected at Emu Field. The desert terrain contained large expanses of sand dune and drift, but in places was quite hard enough to allow landings of large transport aircraft. It was from here that Operation Totem was conducted on 15 and 27 October 1953.

RAAF Lincoln aircraft of Nos 2 and 6 Squadron were employed on cloud tracking/sampling missions on 15 October. Two of the Lincolns also entered the cloud on 27 October. A RAF Canberra was especially assigned to fly through the atomic cloud immediately after the explosion, and two US B-29 aircraft operated out of Richmond on cloud tracking and sampling for both the tests.

Four Dakota aircraft of No 38 Squadron, each fitted with an ionisation chamber and accompanying scientist, were employed on air radiological surveys to determine ground contamination caused by fallout of radio-active dust.

At the conclusion of the operation, nine out of the 12 Lincolns were found to have been contaminated. Of these, eight required special decontamination procedures and ultimately four never flew again.

The RAAF had been led to believe there was minimal hazard to personnel and aircraft associated with sampling radioactive clouds, and needed to devise a quick response to this unexpected hazard. With the support of nuclear experts, the RAAF developed control, exposure management and decontamination procedures, and constructed specialised decontamination facilities. The experience gained from procedures developed at Emu Field, Woomera and Amberley contributed to the success of control procedures used during the later series of tests.

The next tests, named Operation Mosaic, were conducted on 16 May and 19 June 1956 at Monte Bello Islands. They were preliminary tests for Operation Buffalo to be conducted at Maralinga later in the year. In this case, RAF Canberra aircraft (including one crewed by RAAF members) were used to enter the clouds of

—Robert Menzies, 18 February 1952
both explosions, and three RAAF Neptune aircraft from No 11 Squadron were tasked for outward seaward security patrols, transport and observation. The USAF provided two C-118 (DC6) aircraft for the collection of radio-active samples. Partial decontamination of the aircraft was conducted at RAAF Base Pearce.

The move to Maralinga was brought about by concerns of nuclear fallout from the previous tests at Emu Field, its inadequate infrastructure and water supply, and the British government’s formal request for a permanent facility which had been made in 1953. The new site was announced in May 1955 and developed as a joint, co-funded facility between the British and Australian governments.

Prior to selection, the Maralinga site was inhabited by the Pitjantjatjara and Yankunytjatjara aboriginal people. Many were relocated to a new settlement at Yulata, and attempts were made to curtail access to the Maralinga site. These attempts were often unsuccessful, as most indigenous people were unable to read the warning signs placed around the perimeter of the site.

The first tests at Maralinga, Operation Buffalo, were conducted over the dates 27 September, 4 October, 11 October and 22 October 1956. No RAAF aircraft participated but other support was provided. The RAAF coordinated air traffic control at both Edinburgh and Maralinga, provided ground personnel for the range construction force and armament and operational officers for the observation of handling, loading and arming of the atomic weapons. Aircraft decontamination was principally carried out at the Maralinga airfield, and to a lesser extent at RAAF Base Edinburgh.

The fallout from these tests was measured using sticky paper, air sampling devices, and water sampled from rainfall and reservoirs. The radioactive cloud from the first explosion exceeded the predicted height and radioactivity was detected in South Australia, Northern Territory, New South Wales, and Queensland. All four Buffalo tests were criticised by the 1985 McClelland Royal Commission, which concluded that they were fired under inappropriate conditions.

The following year, Operation Antler was conducted at Maralinga, with tests being carried out on 14 and 25 September, and 9 October 1957. The operation comprised the detonation of five explosive devices—three from towers and two from captive balloons. A fully armed Lincoln and aircrew from East Sale was placed on standby to shoot down the balloon with the explosive device attached in the event of any mishap occurring. Also, a Dakota from No 86 Wing undertook patrols for radio-active detection purposes after each explosion.

Although the Antler series of tests were better planned and organised than the earlier Buffalo series, intermediate fallout from one of the tests exceeded predictions. Also, one of the tests used cobalt pellets as a tracer for determining yield, and it was later found that personnel handling these pellets were exposed to the active cobalt 60. Decontamination of aircraft was now a British responsibility, and no RAAF personnel were involved. Up to this point, the British and Australian governments had relied on the RAAF for support through the provision of aircraft and personnel, which was critical to the success of the nuclear tests.

Following Operations Buffalo and Antler, there were a number of minor trials, assessment tests and experimental programs conducted at Maralinga until 1963, when the British Government decided that the site was no longer needed. A formal ban had been placed on atmospheric nuclear weapons tests, and as a result much of 1964 was spent cleaning up the site and burying the most contaminated equipment. In 1966, Britain decided to relinquish the site entirely and a more comprehensive decontamination program, Operation Brumby, was conducted. Maralinga was officially closed in 1967.

Key Points
- The British government looked to Australia for suitable ground on which to conduct its nuclear testing program.
- RAAF provided support to British nuclear testing in the form of aircraft and personnel, including air crew, ground crew and decontamination teams.
- Although radioactivity levels were initially not known, the RAAF responded quickly with the development of decontamination procedures for aircraft and equipment.