

OPERATIONS HURRICANE AND MOSAIC

On 3 October 1952, a nuclear device with a reported yield of 25 kilotons exploded just off Trimouille Island in the Montebellos group some 130km off the Pilbara coast of Western Australia. It was the first of several nuclear tests conducted in Australian territory in the 1950s, and the first ever conducted by the United Kingdom.

British planning for an atomic test began in 1949 and in September 1950, an informal approach was made to Australian Prime Minister Robert Menzies regarding the possibility of testing an atomic device in Australian territory. In March 1951, the British government made a formal request to Menzies to conduct the test, designated Operation HURRICANE, at the Montebello Islands although the final decision to conduct the test there was not arrived at until that December.

HMAS *Karang*i had already made a preliminary survey of the islands in November 1950 and HMAS *Warrego* (II) conducted a more detailed survey in July and August 1951. *Karang*i and HMAS *Koala* laid moorings and placed navigational aids in the area in early 1952 in anticipation of the arrival of the RN/RAN fleet, designated Task Force 4 (TF4), assembled to conduct the test. The Australian government announced the intention to test a British nuclear device in Australia in February 1952.



HMAS Culgoa acted as the weather ship for the first British nuclear test, Operation HURRICANE

A transit camp was established at Onslow on the Western Australian coast for personnel and stores travelling to the Montebellos. Construction work was carried out on Trimouille Island by No 5 Airfield Construction Squadron, RAAF, and a detachment of Royal Engineers, supported by *Karang*i and HMAS *Mildura*. They built five reinforced blockhouses and around 80 concrete foundations for scientific instruments as well as piers, hardstands, roads and towers. Submarine and shore cables were laid, and a camp, station building and laboratories were erected on Hermite Island some 5km south-west of the test site.

The RAN component of TF4 comprised a variety of ships including the aircraft carrier HMAS *Sydney* (III), with 805 and 817 Squadrons embarked. HMA Ships *Tobruk* (I),

Hawkesbury, *Macquarie*, *Murchison*, *Shoalhaven* and *Mildura* carried out patrol work while the smaller vessels *Karang*i, *Koala*, *Limicola*, *Reserve*, *Wareen*, MRL 252 and MWL 251 performed useful work laying moorings, marking channels and providing valuable logistic and personnel support. *Hawkesbury* (I), in a position some 28 miles to the south-east of ground zero, became the closest RAN unit to the detonation, where she conducted security and safety patrols before and after the test. *Culgoa* performed the duty of a weather ship for the main force, specific meteorological conditions being absolutely essential for the conduct of both the HURRICANE and MOSAIC tests. Some of these ships embarked national servicemen undergoing training as part of their regular sea training program. For many, it was their first time at sea.

Operational control was exercised by Rear Admiral Arthur Torlesse, DSO, RN, in the aircraft carrier HMS *Campania*, while HMS *Tracker* was the medical headquarters, or 'health ship'. *Sydney* conducted flying operations in the days leading up to the test and also in the afternoon of D-Day, but her aircraft were not used to monitor the fallout cloud. That task fell to aircraft of the RN and RAAF.

The most significant vessel of the operation, however, was the frigate HMS *Plym*. *Plym* departed the UK, escorting *Campania*, in June with the atomic bomb embarked. She was moored in the lagoon off Main Beach, Trimouille Island, on 8 August with the bomb fixed below the waterline.



HMS Plym in which the Operation HURRICANE nuclear device was detonated

A prohibited area was declared around the Montebellos, defined in the *Defence (Special Undertakings) Act* (1952), radiating for 45 miles by both sea and air around Flag Island.¹ A danger area was declared on 8 August based on a safety distance of 100 miles from ground zero in the areas in which fallout might occur. The danger area was cancelled two days after the test. At the time of the explosion, among other safety precautions, all ships and personnel, with the exception of a small party at Hermite Island, were ordered to withdraw to a distance of at least ten miles extending as necessary in the sector immediately downwind of ground zero.

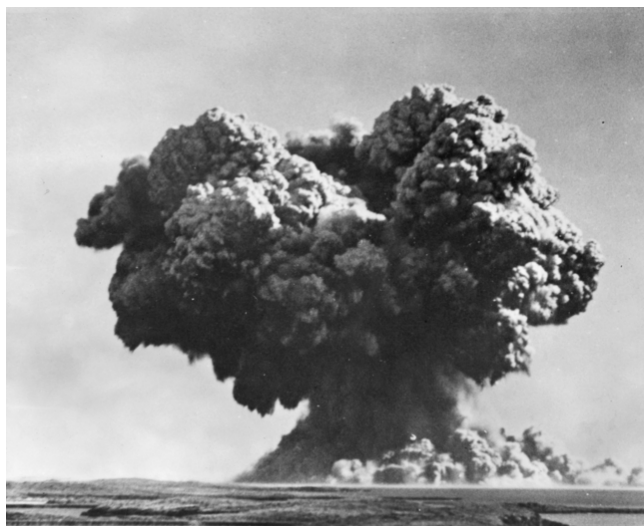
A full 'general rehearsal' was conducted on 20 September which confirmed that all was in readiness. Meteorological conditions were deemed to be satisfactory on 2 October and 'D-Day' was set for the following day.



HMAS Hawkesbury embarking supplies at Onslow for Operation HURRICANE

At 0933 on 3 October, the bomb was detonated inside *Plym*. *Hawkesbury's* commanding officer, Lieutenant Commander Robert Scrivenor, described the event:

In order that the Ship's Company would have the opportunity to witness Britain's first atomic explosion, lower deck was cleared at 0925IK. Eight minutes later, there was a brilliant orange flash, followed by a boiling cloud of smoke, dust and water, shooting up into the sky with dramatic speed. The typical 'mushroom' was soon distorted by the high winds in the upper levels. The blast of the explosion was felt 2 minutes 16 seconds later.²



Operation HURRICANE just moments after a nuclear device was detonated in HMS Plym

Strict controls were imposed regarding the danger of radiation exposure, and on personnel re-entering the test area. Assessments indicated that most of the water in the lagoon between Trimouille and Alpha islands, and around North West Island, was contaminated, while only small amounts of fallout were detected by *Tracker* 3.5 miles to

the south-east of ground zero.

All British forces had departed the area by 1 November 1952. The Naval Officer-in-Charge West Australian Area then assumed responsibility for the area while *Hawkesbury* was tasked with maintaining security and supporting an Australian Joint Service Training Unit. This unit conducted security patrols and training in radiological defence, and a partial radiation survey of the islands. *Hawkesbury's* security duties were completed on 15 January 1953 although regular RAN patrols were maintained in the area until May 1956.³

The success of the HURRICANE test led to discussions between the British and Australian governments regarding further nuclear testing at Maralinga and Emu Field in South Australia. However, in May 1955 the British government sought an agreement for an additional series of tests at the Montebellos which, it claimed, would reduce the overall weapons development program by six months. This additional series of tests would consist of two separate detonations conducted Operation MOSAIC. The intention on this occasion was to detonate the devices from shore-based towers in an attempt to limit the amount of fallout.



The boom defence vessel HMAS Karangi supported Operations HURRICANE and MOSAIC

With concerns regarding the meteorological conditions and the projected yield of the devices addressed, the proposed tests were formally approved and a public announcement to that effect was made on 10 September 1955.⁴ *Warrego* and *Karangi* conducted mooring, surveying and marking operations in October and November. Royal Engineer and Royal Navy working parties conducted site preparation work from February 1956, including the construction of a shore camp, control building and camera tower on Hermite Island, and weapon towers on Trimouille and Alpha islands. Operational bases were established at Onslow, Pearce, Darwin and Christmas Island where a naval meteorological reporting station was located.

The naval fleet gathered for the operation was designated Task Force 308 (TF308) under the overall command of Commodore Hugh Martell, RN, in *HMS Narvik*. The RAN component comprised HMA Ships *Junee*, *Fremantle*, *Karangi*, *MRL 252* and *MWL 251*, designated Task Group (TG) 308.2. Air sampling on this occasion was to be conducted by RAF and RAAF aircraft.

A prohibited area radiating 45 miles from Flag Island was declared in February 1956. A danger area for shipping and aircraft was declared in May radiating for 150 miles from



Flag Island, and was increased to 250 miles for the second, larger detonation. The Atomic Weapons Tests Safety Committee was to ensure that the detonations took place only when conditions were such that no danger was posed to life on land, sea or in the air. Other safety instructions were enforced in a similar manner as those for HURRICANE.

The first detonation, with a reported yield of 15 kiltons, occurred at 1155 on 16 May from a tower in the north-western part of Trimouille Island. *Fremantle*, *Junee*, MRL 252 and MWL 251 were all anchored in an area some 12 miles south-east of ground zero with 14 Australian and British members of the press embarked in *Fremantle* and *Junee*. MWL 251's commanding officer, Lieutenant George Halley, described it:

At 1145 all the hands mustered on the port side of the boat deck and the count down commenced at 1148... At 1151, although we had our backs to Trimouille Island, we experienced a blinding flash of intense magnitude, followed by a slight burning feeling across the back of the neck and at the back of the knees. This was only momentarily (sic) and the intensity of the heat resembled the warmth of the sun on a December day. At 'H' plus 5 seconds, the hands were permitted to face the direction of Trimouille Island. On looking round we observed the last stages of the fireball. It resembled a huge oil fuel fire. As soon as it had contracted a thick mass of dark grey cloud rose in a vertical direction at a terrific speed. The familiar mushroom cloud soon developed. Shortly afterwards at approximately H plus 60 seconds, the blast wave was felt.⁵



HMAS Fremantle (I) embarked VIPs and members of the press gallery to observe the first Operation MOSAIC detonation

The second detonation, with a reported yield of 60 kilotons, occurred at 1014 on 19 June from a tower in the eastern part of Alpha Island. *Fremantle* and *Junee* were both at Fremantle at the time of the second detonation while *Karang*, which had joined TG308.2 on 3 June, was at Onslow. The two lighters were operating outside the Montebellos Lagoon. Lieutenant Halley, commanding MRL 252 at the time, described the second detonation:

Once again the count down was done with a deck watch and at 1014H we experienced the blinding flash as the weapon fired. At H plus 5 seconds the ships

company turned towards Alpha Island and on this occasion the glare of the fireball seemed to last longer and was more intense in its magnitude. As before, as soon as the fireball had contracted, the mushroom cloud rose at a terrific speed.⁶

As had occurred with HURRICANE, access to contaminated areas was strictly controlled from health control stations established ashore. The withdrawal of TF308 commenced immediately after the second detonation on 19 June. Back loading of stores and equipment was completed by 25 June and all RN units had departed Australian waters by the following day at which time control of access to the islands reverted to the Naval Officer-in-Charge West Australian Area. *Fremantle*, *Karang*, MRL 252 and MWL 251 departed for Fremantle on 27 June. *Junee* had departed the area after the first detonation.⁷



The Montebello Islands depicting the three nuclear test sites from Operations HURRICANE and MOSAIC

Some 20 years after the British tests, the Australian government view on nuclear testing had changed. In 1973 HMAS *Supply* was deployed to the South Pacific to support HMNZ Ships *Otago* and *Canterbury* which were observing French nuclear tests at Mururoa Atoll as a form of protest against that testing program.⁸

Petar Djokovic

- ¹ JL Symonds, *A History of British Atomic Tests in Australia*, Australian Government Publishing Service, Canberra, 1985, p. 22.
- ² HMAS *Hawkesbury* Reports of Proceedings, October 1952.
- ³ 1952 Monte Bello Atomic Test - Operation Hurricane - Draft Background Report, Copy held by Sea Power Centre - Australia.
- ⁴ Symonds, *A History of British Atomic Tests in Australia*, pp. 310-322.
- ⁵ HMAS MWL 251 Reports of Proceedings, May 1956.
- ⁶ HMAS MRL 252 Reports of Proceedings, June 1956.
- ⁷ 1956 Monte Bello Atomic Tests - Operation Mosaic - Draft Background Report, Copy held by Sea Power Centre - Australia.
- ⁸ *Navy News*, Vol 16, No 18, 14 September 1973.



Sea Power Centre - Australia
Department of Defence
PO Box 7942
Canberra BC ACT 2610
AUSTRALIA
seapower.centre@defence.gov.au
www.navy.gov.au/spc/

