

# **Title Slide – have up**

## ***From Participation to Protest: The Royal New Zealand Navy and Nuclear Testing 1957-1995***

### **Introduction**

I would like to thank David Stevens and the Sea Power Centre for the opportunity to present at this conference. My topic today comes out of pieces of research that I have completed over the past twelve months for our Chief of Navy and Veterans' Affairs on the RNZN's part in GRAPPLE tests followed 15 years later by protesting at Mururoa Atoll.

As "cooperation" is the conference theme, my choice for title of this paper is quite deliberate. I want to suggest that New Zealand's naval history illustrates diverse forms of cooperation with Commonwealth navies shaped by political considerations.

I am tempted to go further and propose that this part of our naval heritage is unique to the RNZN.

To begin with, I will present a brief overview of our naval cooperation up until 1955 to give some framework to the topic under discussion.

Here are the periods I want to offer today for review

## **CLICK SLIDE 2 KEY DATES**

New Zealand, despite some reservations, willingly participated in the Operation GRAPPLE nuclear testing in 1957 and 1958. I will discuss this period to illustrate the form of cooperation between the Royal Navy and the RNZN and how it was shaped by the political considerations.

In the 15 years that elapsed between the conclusion of the GRAPPLE tests and the 1973 French tests the posture of the New Zealand Government had changed with respect to atmospheric testing in the Pacific.

The political will for direct action came with the 1972 election of a Labour Government under Norman Kirk. New Zealand sent two frigates were despatched to Mururoa in June-July 1973.

This action will illustrate a form of cooperation between the RAN and the RNZN. Between June and August 1973 while other navies carried out surveillance operations of the French tests, the New Zealand ships were messengers of protest with the invaluable assistance of our Australian friends.

In 1995, with the resumption of testing at Mururoa, the New Zealand Government once again deployed a RNZN vessel to the atoll. This time, there was no cooperation. This example shows how the Australian and New Zealand governments responded differently to public clamour for action and how the use of a naval vessel as an instrument of protest was viewed in our respective countries.

## **A History of New Zealand and Naval Cooperation**

I want to first illustrate in our naval heritage that diverse cooperation with Commonwealth navies was not unusual for New Zealand.

Our national history is intimately linked to the Royal Navy.

The first example is Captain James Cook and his three voyages to New Zealand which placed us firmly on the map and within the British Empire while bringing our indigenous population a source of protein and carbohydrates in the form of pigs and potatoes.

The second example is Captain William Hobson. He had visited New Zealand in 1837 and was an obvious choice in 1840 to oversee the signing of the Treaty of Waitangi as the Lieutenant Governor of the new colony. He was also responsible for the establishment of the first naval shore facilities in Auckland.

## **CLICK Slide 3 Spar Torpedo Boat c1896**

As New Zealand developed as a colony in the latter part of the 19<sup>th</sup> century we saw the need for naval protection. New Zealand's distance

**'bred not isolation but a profound sense of vulnerability and indefensibility.'**<sup>1</sup>

By 1887 in conjunction with Australia we made a contribution to the Royal Navy to ensure an increased presence in the South Pacific and New Zealand kept making contribution for over thirty years.

## **Slide 4 Calliope dock 1888 opening**

A year later a new dry-dock was opened in Auckland at what is now the naval base. One of the major factors driving this decision was that it could be used by ships of the Royal Navy operating in the Australia and New Zealand.

Therefore I would argue New Zealand's form of naval cooperation was financial and that this continued up to 1913.

## **Slide 5 HMS *New Zealand***

This year marks the centenary of our greatest financial contribution to naval cooperation. In 1909 Prime Minister Sir Joseph Ward of New Zealand offered to purchase two battleships for the Royal Navy while increasing our contribution to naval defence of the Dominion to £100,000. Ward's intent was for this ship to be nominated as the Flagship of a proposed Pacific Fleet to include the Australian, East Indies, and China Fleets.

His stated his rationale for the offer by noting

**how important it is for the protection of the Empire that the Navy should be at the absolute disposal of the Admiralty...that the truest interest of the people of New Zealand will be best served by having a powerful Navy under the independent control of those responsible for directing it in time of peace or war...so that the most effective results for the defence of all portions of the Empire may be assured.<sup>2</sup>**

As an ardent imperialist myself I wholeheartedly agree. There is a secret in New Zealand history – and that is we would have been very happy to have remained a colony or dominion.

The gift battleship became a battlecruiser named HMS *New Zealand* worth £2,300,000. The gift was warmly received and the citizens of the generous Dominion were allowed to see it twice during its service with the Grand Fleet. Unfortunately for Sir Joseph War it never formed part of a Fleet to protect New Zealand but he, as cynics suggested, gained a title from the King for his efforts on behalf of the RN.

Mind you, at least our battlecruiser got into combat, unlike HMAS *Australia*, that in a spirit of non-cooperation collided with HMS *New Zealand*.

It was in 1913 that the New Zealand Government **passed the Naval Defence Act authorising the New Zealand Naval Forces. Though only on paper the Navy was established** with the intended structure, duties and obligations set out in law. The concept had taken form and New Zealand's own Navy awaited the reality of ships and men.

Progress was interrupted by the First World War. The cruiser HMS *Philomel* which was to be the nucleus of a New Zealand naval force arrived early July 1914 and departed soon after. Captain Thompson-Hall the CO had only one brief meeting with the government as our first naval adviser. New Zealand actively discouraged volunteers for the Royal Navy at first but in 1916, despite conscription being passed, Royal Navy recruiters came to New Zealand for motor mechanics to serve with the motor boat flotillas. Over 250 New Zealanders joined the RNR.

It was not until 1920 that the New Zealand Division of the Royal Navy was formed. New Zealand's naval defence now consisted of two cruisers along with a minesweeper for training purposes. We committed to carry the cost of these cruisers and provide a base and manpower.

## **Slide 6 Philomel c1927 – chickens**

This remained in place during the interwar period. New Zealanders serving with the New Zealand Division of the Royal Navy progressively increased. the portion of men serving on those ships along with further development of the naval base to support the cruisers

## **Slide 7 Philomel c1937 from the air**

The Second World War should be seen as the first significant period of naval cooperation between New Zealand naval forces and our Commonwealth brethren. In 1939 New Zealand could only offer two cruisers and they were quickly sent into action in the case of HMS *Achilles* at the Battle of the River Plate.

## **Slide 8 HMNZS Achilles**

Although we had a small fleet we did have one useful asset. And that was men. Over 10,000 New Zealanders passed through our training establishment HMNZS *Tamaki* during the war that went on to serve with the RNZN (assent being given in 1941) or the Royal Navy across all types of ships and in every operational theatre.

## **Slide 9 Group with gasmasks**

In 1943, HMNZS *Leander* was decommissioned and *Achilles* in refit the Royal Navy loaned the cruiser HMS *Gambia*, to date the largest vessel to have served with the Royal New Zealand Navy. We were also given the corvettes HMNZS *Arbutus* & *Arabis*.

## **Slide 10 Men on Achilles**

By 1945 our main naval cooperation was the cruisers *Achilles* and *Gambia* attached to the British Pacific Fleet. This effort was supported by the Naval Radio station located at Waiouru in the centre of the North Island.

During the war the Combined Services Wireless Station was the RNZN's direct link with the Admiralty in London, naval bases in Canada, Bombay, East Africa, Australia, and the United States. The Waiouru station also acted as part of the administrative signals network for the British Pacific Fleet (BPF).

Part of this critical support was to sending Morse code signals for the Fleet Train to conduct replenishments at sea. Due to the overloading of the American fleets circuits when the Allied fleets were operating off Japan, Waiouru also handled the radio traffic for the BPF supporting the Admiralty in London in communicating with its ships.

In the post war period RNZN went a massive reduction in personnel and ships but again in the spirit of co-operation we were supplied with Improved Dido-class cruisers HMNZS *Bellona* later and her sister ships *Black Prince* and *Royalist*. New Zealand officers were also taken to the United Kingdom for training and development.

As a throwback to our financial cooperation, from 1949 the RNZN shared the cost of stationing the Royal Navy's 4<sup>th</sup> Submarine Squadron at Sydney for the purposes of 'live anti-submarine training'<sup>3</sup> with the RAN. During the same year New Zealand also offered three frigates for the defence of Hong Kong.<sup>4</sup>

By 1950 the RNZN was so short of officers and experienced ratings that the Royal Navy kindly supplied a cadre to serve in our Navy. This cadre would comprise 25% of the strength of the RNZN in that year. The Royal Navy also provided all the officers to serve as members of the New Zealand Naval Board until 1957.<sup>5</sup>

In an example of the post-war links to the RAN, the RNZN cooperated closely with the Royal Australian Navy in the protection of sea-lanes within the designated ANZAM area.<sup>6</sup>

Then in 1948 we were given a deal to purchase six Loch-class frigates at the bargain price of £1,500,000. This enabled the reestablishment of a New Zealand squadron.<sup>7</sup> The Royal Navy also lent 250 ratings on a short-service engagement in order for the six frigates to be sailed to New Zealand.<sup>8</sup> Having these vessels in our fleet enabled New Zealand to make a contribution to the United Nations naval forces during the Korean War.

All six frigates would serve with the fleet between 1950 and 1954 as the RNZN maintained two frigates on station. As an example of cooperation from this period, in 1951 New Zealand sailors and Royal Marines conducted raids on the North Korean coast.

In 1954 the RNZN sent the frigate HMNZS *Pukaki* to join the Third Frigate Squadron of the Far East Station under Royal Navy Far East Fleet command. It took part in exercises with RAN, Indian and Dutch warships.<sup>9</sup> During the Malayan Emergency New Zealand frigates and cruisers served alongside Australian and British vessels<sup>10</sup> conducting patrols and shore bombardments.

These examples indicate that leading up to Operation GRAPPLE we had a long and close working relationship with Commonwealth Navies.

This relationship was now to be put upon to supply assistance to the Royal Navy in one of its largest post-war deployments to which I now want to turn your attention to.

## **Slide 11 Operation GRAPPLE book**



## **Operation GRAPPLE Background**

In the post war period development of nuclear weapons became a cornerstone of the United Kingdom's defence and foreign policy. America accelerated its nuclear programme and had passed the McMahon Act in 1946 prohibiting the exchange of nuclear weapons and testing data between America and Britain. So much for the United Kingdom's contribution to the Manhattan Project.<sup>11</sup>

After making the decision to enter the nuclear arms race Britain needed a place to test their weapons. After a review a secret request for a suitable test site was made in 1950 of the Australian Prime Minister Robert Menzies.<sup>12</sup> A site at Monte Bello Island, off the western coast was offered and Operation HURRICANE, the first British nuclear test, was carried out on 3 October 1952.<sup>13</sup> Following on from the first test Britain carried out further testing in Australia in 1953, 1956 & 1957. The programme required participation of 40,000 British, Australian, New Zealand servicemen and civilians.<sup>14</sup>

In 1953 the British Defence Research Policy Committee issued a report that described the object of the tests was:

**to discover the detailed defects of various types of [nuclear] explosion on equipment, stores, and men with and without various types of protection.**<sup>15</sup>

In June 1954 the United Kingdom Government authorised the development of thermonuclear weapons.<sup>16</sup> The White paper released in February 1955 stated that **'we must contribute to the deterrent and to our own defence.'**<sup>17</sup>

It was understandable that testing a thermonuclear weapon on a land mass was not the preferred option given the risks of fallout on civilian populations. Under the agreement allowing the atomic tests Australia could refuse to allow testing of thermonuclear weapons at the existing test sites.<sup>18</sup>

Australia's refusal meant that the Air Ministry's Trials Planning Section had to consider alternative test sites. The United Kingdom wished to avoid the

disastrous American *Bravo* test at Bikini Atoll in March 1954 where service personnel and civilians had been irradiated by the 65 tonne device whose yield was double what had been predicted but typical of a new weapon.<sup>19</sup>

The operation for testing thermonuclear devices in the South Pacific was given the code name GRAPPLE. The purpose of the testing would be to test the loading and deployment of thermonuclear weapons from Valiant bombers and the weapon's performance.<sup>20</sup>

The Planning Section's test site criteria were:

- Favourable wind and weather for air and sea operations
- Suitable harbour for landing supplies
- Away from inhabited areas but accessible to source of supplies
- Had to have an airstrip long enough to take the Valiant bomber.<sup>21</sup>

In 1955 the British Prime Minister Sir Anthony Eden approached New Zealand's Prime Minister Sidney Holland with a personal request to use the Kermadec Islands as a testing site. The Trials Planning Section had concluded that this was 'the most promising site.'<sup>22</sup> His request was framed around the principle of the Commonwealth defence effort. He hoped:

**...that, in the interest of our common defence effort and the important of the deterrent for Commonwealth Strategy, you will find it possible to agree.**<sup>23</sup>

The first test at this new site was proposed for 1957. Eden was at pains to state this was a 'safe site'.<sup>24</sup> The device would be mounted on a tower or a ship anchored near the shore.

What would be the response? We need to consider New Zealand's defence policy in the 1950s.

## Our Involvement

In the 1950s New Zealand's foreign and defence policies were orientated to the Commonwealth. In terms of the commitment of armed forces New Zealand had shifted its focus from the Middle East to South East Asia.<sup>25</sup> In Wellington's view, the development and testing of atomic and thermonuclear weapons by the United Kingdom would enhance New Zealand's and the Commonwealth's security.<sup>26</sup>

After joining ANZUS New Zealand did not object to the Pacific Ocean being used for nuclear weapons tests as long as these weapons could be used to **'prevent or to ward off "an armed attack in the Pacific Area" on one of its treaty partners or possessions'**.<sup>27</sup>

While not overtly enthusiastic, New Zealand hoped that these weapons would create balance of power in favour to Anglo-Saxon democracies and their allies and prove a deterrent to the Soviet Bloc. The West in New Zealand's opinion had to remain strong in the face of Communism.<sup>28</sup>

Upon receipt of Eden's request, Holland was beset by personal concerns about the testing of these new weapons.<sup>29</sup> The source of this concern was due in part to the impression that Churchill had given to Holland early in 1955 about the destructive power of a thermonuclear device. He was also aware of unfavourable public responses to the proposed testing in Britain.<sup>30</sup>

He sought advice from Defence and the former head of the Dept of Industrial and Scientific Research. The answer he received was that the 'difficulties' and public opposition to use of the Kermadecs **'outweighed other factors, such as New Zealand's desire to assist with Commonwealth defence preparations'**.<sup>31</sup>

Clearly, New Zealand was willing to play our role in defending the Western Bloc, but we were not prepared to use our backyard to do so. He duly informed the United Kingdom's High Commissioner in August 1955 that the Kermadecs were not available.

Eden was disappointed that New Zealand would not help Britain to carry out testing. He then advised Holland that the United Kingdom was:

**...now considering the possibility of using some other less suitable site in the central Pacific. The practical difficulties are however likely to be serious and if we fail to find an acceptable alternative I may be compelled to ask you whether you would reconsider the matter.<sup>32</sup>**

Despite our rejection of the use of the Kermadecs for testing New Zealand was still willing to provide assistance in whatever way it could. It was readily agreed to make available the docking facilities at HMNZS *Philomet* in Devonport to any Royal Navy vessels that needed to use them.<sup>33</sup>

## The first example of cooperation

### Slide 12 HMNZS *Lachlan*

Because of the lack of a suitable survey ship, the British Government requested that the RNZN conduct a hydrographic and geological survey of Malden and Christmas Islands. Eden asked for this assistance at the same time he had asked to use the Kermadecs.<sup>34</sup> HMNZS *Lachlan*, the first hydrographic vessel to serve with the RNZN surveyed the Northern and Southern Line Islands between January and February 1956.<sup>35</sup> Royal Navy and Royal Engineer officers joined the ship at Suva on 21 January 1956 to assist in the surveying task as part of the GRAPPLE planning team.<sup>36</sup> The RNZN effort supported the air reconnaissance carried out by RAF Shackletons.<sup>37</sup>

The survey had to be carried out in some secrecy and a cover story was developed when the ship arrived at inhabited islands.<sup>38</sup> During the voyage the ship stopped over at Papeete and the CO of *Lachlan* noted that **'it was the ideal place for the entertainment of seafarers...with its good music and Tahitian girls.'**<sup>39</sup> On completion of the survey the British officers were disembarked at Lautoka and returned to the United Kingdom by air.<sup>40</sup>

### Slide 13 Map of Christmas Island

Based on the survey results the Trials Planning Section found an alternative to the Kermadecs. The suitable site for a base of operations was Christmas Island in the Northern Line Islands (now Kiribati). Malden Island was an uninhabited Island 700 kilometres southeast of Christmas Island which would be used for the tests.

The first party at Christmas Island in June 1956 and by November 1956 equipment and land-based units were in place constructing the base<sup>41</sup> which became one of the United Kingdom's biggest military facilities outside of Britain and GRAPPLE would become one of the largest post-Second World War joint-service operations.<sup>42</sup>

Also in June 1956 the Mosaic G2 device was tested off Alpha Island. This 60kt device was the largest yet detonated and was to test triggers for the thermonuclear devices to be tested in a forthcoming programme.<sup>43</sup>

Despite his rejection of using New Zealand territory, Holland went on record in 1956 stating that:

**In the absence of any agreement among major powers on the question of control and supervisions of reductions of conventional armaments, *the development of this branch of the nuclear sciences must continue. Periodic tests are essential to this work.***<sup>44</sup>

## **New Zealand's Naval Contribution**

On 26 July the United Kingdom requested that the RNZN supply two of its Loch-class frigates to the GRAPPLE Task Force.<sup>45</sup> The ships would have to be at Christmas Island from 21 March 1957 to early July.<sup>46</sup> The New Zealand government was assured that the participation of the frigates would not incur any extra costs than normal for an overseas deployment.<sup>47</sup>

The reason given to the New Zealand Government was that the Royal Navy had very few ships readily available that were fitted with type 277Q radar and **'would find it extremely difficult to provide two [ships] without interfering with such commitments as patrols in the Persian Gulf for which the ships have been especially tropicalized and complemented.'**

It was understood that the RNZN had three frigates with 277P radar that could be easily converted. As for using cruisers fitted with this radar type from the Far East Fleet? **'...it would be very wasteful in manpower, as well as undesirable from the point of view of demands on the Far East Station, to use cruisers as weather ships.'**<sup>48</sup>

To provide cover for the deployment of the two RNZN frigates on Operation GRAPPLE the RN offered the frigates HMS *St Brides Bay* and HMS *Cardigan Bay* as replacement ships for the RNZN. They would fulfil the operational programme of the RNZN frigates.<sup>49</sup> A request had been made of the RAN but there was not a ship suitable for weather reporting in the Australian fleet.<sup>50</sup>

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In October 1956, the New Zealand Naval Board met and began to plan for the deployment based on the offer of the RN and the requirements set by the Air Trials Planning Section.

## Slide 14 HMNZS *Pukaki*

The frigates HMNZS *Pukaki* and *Rotoiti* were selected.<sup>53</sup> Between November 1956 and January 1957 the dockyard at Devonport upgraded the radar to type 277Q along with other work required to bring the ships to operational readiness for GRAPPLE.

As news began to filter into the public arena of a proposed testing programme in the Pacific, there was some public disquiet. Suggestions were made that New Zealand withdraw its offers of support and ships from the task force. In response, the then Chief of Naval Staff, Rear-Admiral John McBeath stated that New Zealand was not threatened by these tests and that the government did not want to be seen **'starting a job and not having the guts to finish it.'**<sup>54</sup> But overall the New Zealand public in 1957 supported our naval participation.

But to be sure, the government did run a PR exercise to assuage fears. By 1957 the United Kingdom government was publically stating that **'tests are indispensable part of their [nuclear devices] manufacture.'**<sup>55</sup>

There was concern in Wellington about loose lips. Around this time there had been comments made by naval officers in public regarding the Suez crisis, visiting British warships, and the conduct of RNZN operations that cut across the Government public statements. From the first involvement of the RNZN, the resultant media coverage of the participation in GRAPPLE was to be tightly controlled. Naval Officers were on warning not to offer comments to the press.<sup>56</sup>

There was some disquiet that the New Zealand frigates would be used to arrest Japanese protest vessels. There was a lot of debate between Defence and External Affairs in Wellington in early 1957 over the potential for a protest fleet from Japan that finally External Affairs proposed that the operations of the frigates be restricted.<sup>57</sup>



Rear Admiral McBeath felt that such a course of action would cause the Royal Navy “**to lose all faith**” in the RNZN and there would be no restrictions imposed on the operational deployment. This view was coloured by the action of withdrawing the cruiser HMNZS *Royalist* from the British Mediterranean Fleet during the Suez Crisis.<sup>58</sup>

On 11 February 1957 the Cabinet approved the New Zealand participation in Operation GRAPPLE and on 18 February the Naval Board ordered the CO's of HMNZS *Pukaki* (CO Commander Richard T. Hale – and senior officer) and *Rotoiti* (CO Lieutenant-Commander William J. Brown) to make ready for sea.<sup>59</sup> The Cabinet approval included:

**The giving of ancillary assistance to the United Kingdom in Connection with the forthcoming nuclear tests in the Pacific including –**  
**(i) the fitting of two RNZN frigates with special radar equipment and their serving as weather ships for the operation from 21 March until early July;**<sup>60</sup>

Holland issued a carefully drafted [with British assistance] press release on 5 March 1957 announcing the participation of the frigates in the forthcoming testing.

The two frigates were to be stationed in the ‘**Central Pacific as weather ships.**<sup>61</sup> This ‘**ancillary assistance...provided to the United Kingdom will be directed primarily to the improving the effectiveness of these precautionary measures.**<sup>62</sup> The frigates would fit into a meteorological network consisting of weather ships and land based stations supported by aircraft.

And just prior to the first GRAPPLE test Holland commented:

**If Britain were to call a halt now it would leave her uncertain in her knowledge as to whether she did in fact possess adequate means of retaliation should nuclear weapons be used against her or should she be threatened with attack by this means. The United**

**Kingdom understandably wishes to have that knowledge.<sup>63</sup>**

The RNZN was unprepared in terms of personal protective gear and equipment. In order for the ships to participate, RN would have to supply whatever was required.<sup>64</sup>

The ships would also be equipped with pre-wetting systems of hoses and spray heads to wash down the superstructure of the ship to prevent fallout from settling. The ABCD states of operation were implemented aboard the ships for when they were operating within the testing zone. In case of a serious radiation hazard the ship would be secured for the protection of the ship's company.

Joining the New Zealand frigates for training purposes were forty ratings of the Fiji Royal naval Volunteer Reserve. When they arrived at Christmas Island they were transferred to HMS *Warrior* for three months training.<sup>65</sup>

## Operations

### Slide 15 Hydrogen balloons

The primary task of the frigates was to conduct patrols around the test site and launch hydrogen-filled weather balloons. Radar reflectors fitted to the balloons enabled them to be tracked by the 277Q radar system so that wind speed and direction could be measured. Additional measurements were taken of the water temperature, humidity, and rain. All weather data collected by the ships was provided to the main meteorological centre located on Christmas Island.

A specially trained RN team was assigned to each frigate to assist with the data collection.<sup>66</sup> Balloons were released at regular intervals and additional balloons were released just prior and after a detonation. One balloon was tracked by *Pukaki* to a height of 30,602m (100,400ft.).

Secondary tasks included air-sea rescue, police patrol, anti-submarine watch, monitoring the thermal flash, and sampling the water for radiation contamination.<sup>67</sup> Precautions were taken in case there was a surface detonation. Ships were stationed upwind of ground zero and away from areas that would likely be contaminated if a surface burst occurred.<sup>68</sup>

The ships departed Auckland on 14 March 1957<sup>69</sup> to join the Task Group. On route, many drills were undertaken of damage control and gas-tight states to prepare for operating in the test zone.<sup>70</sup> Pre-wetting was also practiced.<sup>71</sup> Two officers from the RN served aboard *Pukaki* for the first five tests in 1957 and 1958 but for last series of four tests all officers aboard were New Zealanders.<sup>72</sup> Both ships carried the equivalent of a full wartime complement, approximately 150 officers and ratings.<sup>73</sup>

*Pukaki* arrived at the Port of London, a natural harbour inside the northwest arm of the Christmas Island's lagoon on 21 March 1957 followed by *Rotoiti* on 29 March. The RN embarked a meteorological team aboard both vessels to

assist in the weather recording for the operation. Operational command was with the Commodore Grapple Squadron based at Christmas Island. Administrative matters were dealt with by the RNZN in the usual way.<sup>74</sup>

The light fleet carrier HMS *Warrior* was operation control ship for GRAPPLE.<sup>75</sup> RN helicopters were used to transfer supplies, personnel, and equipment between the control ship and the frigates when required.<sup>76</sup> In May repairs on the *Pukaki*'s radar were carried out by personnel from *Warrior*.<sup>77</sup>

HMS *Warrior* also carried replenishment for the frigates in May and June 1957. This included fuel, provisions, hydrogen and film. Ratings and Officers from *Pukaki* carried to a ne-day training programme given by the GRAPPLE Squadron ABCD officer aboard HMS *Warrior*. Commander Hale thought the course 'good value and assisted considerably in providing much needed information for our ABCD organisation.'<sup>78</sup>

## **SLIDE 16 TRAINING WITH EQUIPMENT**

The RN issued the necessary equipment which included contamination meters, valve water sampling heads, water contamination calculator, survey meters, Quartz Fibre Dosimeters, and 300 film badges.<sup>79</sup> These film badges were collected after each test and sent to HMS *Narvik*, the Scientific Technical, Control and Monitor ship for processing.<sup>80</sup>

Anti-flash hoods and gloves, surgical gauze masks, AWRE coverall suits, tinted goggles, and light type respirators were issued to the ship's company.<sup>81</sup> Training in the use of the equipment and clothing was carried out aboard *Warrior*.

The New Zealand sailors received medical support through the PMO of the GRAPPLE Squadron. There was a high demand during the first deployment for antibiotics and dentistry.<sup>82</sup>

Additionally nineteen New Zealand service personnel were posted aboard *Warrior* during the first GRAPPLE tests. There is no definite information as to

what they did or how long they served aboard the carrier in 1957.<sup>83</sup> A New Zealand sub-lieutenant served on the frigate HMS *Scarborough* for the four tests August and September 1958 and 3 RNZN personnel served at HMS *Resolution*, the shore establishment located on the North West coast of Christmas Island for the four tests August and September 1958.<sup>84</sup>

HMNZS *Pukaki* began her first weather patrol for Operation GRAPPLE on 31 March 1957. *Rotoiti* also undertook training on the equipment issued and replaced *Pukaki* on patrol on 5 April 1957. The collection of weather data was successful and the newly installed radar equipment worked satisfactorily. Both ships conducted state ABCD exercises in April and deployed the pre-wetting equipment. This was highly unpleasant due to the heat and humidity of the local conditions amplified by the enclosed spaces of the sealed vessel. The CO of *Rotoiti* noted that the ABCD training had **'been at the expense of day to day maintenance, weapon training etc.'**<sup>85</sup>

For serving aboard a ship that was never designed for deployment in nuclear environments the officers and men of the RNZN should be commended. By May 1957 the RNZN had been given the most up-to-date protocols for ABCD organisation and procedures aboard ship by the Royal Navy, something that was not available to the commanding officers prior to deployment to the operation.<sup>86</sup>

## **Slide 17 BOMB Gone newspaper**

After a rehearsal in late April, *Pukaki* & *Rotoiti* left Christmas Island in early May on patrol in preparation for the first GRAPPLE test.

On 15 May 1957 the test codenamed SHORT GRANITE was carried out. Both ships took up their assigned positions off Malden Island. By 0950 all the ship's company were in their protective clothing and dark goggles fitted.

*Pukaki* was stationed 50nm (93km) from the detonation point. Apart from men required to remain at their stations below deck the ship's company was assembled on the upper deck facing aft away from the test site.

The device detonated at 1038 local time approximately 2,400 metres above Malden Island after release at 14,000 metres from the Valiant bomber.

## Slide 18 Post detonation two images

Commander Hale recorded the initial scene in the *Pukaki's* Report of Proceedings:

**The fire ball just starting to grow in size was easily visible well above the horizon. During plus 2 and plus 3 minutes the blast wave was distinctly noticeable by a double wave of pressure on the ear drums followed closely by a double rumble – the explosion. For those first of two or three minutes the fire ball grew in size shaped like a round fiery [sic] red streaked with grey to a larger smouldering ball of cloud visible for 7 to 8 minutes.**

*Rotoiti* was stationed 150nm (278km) from surface zero. The commanding officer implemented the full range of NBCD precautions. The rumble of the detonation was heard 13 minutes after detonation and only later was the cloud seen.

*Rotoiti* and *Pukaki* met up with *Warrior* in the afternoon to offload data<sup>87</sup> from the weather balloons launched after the test and take on new supplies. The ship passed within 6nm (11km) of ground zero (or surface zero as it was called for these tests).

In addition, three New Zealand observers from the RNZN, Army, and Health Department observed the test aboard the RN ship HMS *Alert*. The observer from the Health Department reported to Holland noted that the **'report reinforces the assurances the Government has received from Britain that the tests are being conducted with the utmost care and regard for the safety of human life.'**<sup>88</sup>

## Slide 19 Crew on deck and cloud

The cooperation procedure for the second and third tests held on 31 May and 19 June followed the same pattern as the May 15 test. Both ships offloaded

the specialist equipment and left Christmas Island 25 June 1957 arriving at Devonport Naval Base on 16 July 1957.<sup>89</sup>

The Commodore of the GRAPPLE Squadron reported to Wellington on the ABCD training and made a number of suggestions based on the experiences of the first tests for the future deployments.<sup>90</sup> The Commander of the GRAPPLE Task Force Air Vice Marshall Wilfred Oulton also visited Wellington in June 1957 to thank the Government for their support.

Due to the poor results of the first three GRAPPLE tests, a further test was planned for late in 1957. Britain was aware that an international agreement to halt all atmospheric testing was being discussed and could be coming into effect before the schedule for GRAPPLE could be completed.

The location for the first test of a thermonuclear device was to be moved from Malden Island to Christmas Island. The rationale was that the first three tests had shown that an air burst test could safely be conducted near population areas.<sup>91</sup> In July 1957 Holland responding to a note from Prime Minister Harold Macmillian that **'New Zealand should give whatever assistance is possible on lines similar to that accorded for earlier tests.'**<sup>92</sup>

## **Slide 20 test and scrub down**

In August 1957 arrangements were confirmed with the New Zealand Naval Board that *Pukaki* and *Rotoiti* would be used again as weather ships. Fortunately for the RN the operations plan for the two ships had kept them in New Zealand waters and both could readily be deployed.<sup>93</sup> Macmillian wrote to Holland on 11 September 1957 advising that it was planned to keep the GRAPPLE Task Force at Christmas Island until mid 1958 because of the great expense and effort that the United Kingdom had engaged in and he sought an agreement in principle.<sup>94</sup>

Keith Holyoake, who had taken over as PM wrote to MacMillian on 4 October 1957 stating that New Zealand would **'give whatever assistance we can to enable you to carry out these tests successfully and safely.'**<sup>95</sup> He also

confirmed that New Zealand would assist with testing in 1958 up to May if necessary. This deployment was released publicly on 10 October 1957.<sup>96</sup>

By 22 October 1957 both ships arrived at Christmas Island. At this time a new ABCD handbook was issued for the Loch-class frigates with procedures for sealing off the ship in a contaminated environment, levels of containment, and decontamination.<sup>97</sup> Both were on station when the ROUND C test was carried out on 8 November. Both frigates exercised with the GRAPPLE Squadron and returned to New Zealand in company and arrived back at Devonport Naval Base at the end of November.

Despite Holyoake's commitment in October, United Kingdom put out feelers about the use of the frigates in 1958 in November. New Zealand it was said, had **'unselfishly performed this unrewarding task in previous and current tests...the United Kingdom was certainly not seeking in any way to press New Zealand to continue if she wishes to be relieved.'**<sup>98</sup>

The RN was aware that **'we would ask the RAN to take it on but we have every reason to suppose that in present circumstances they would find it difficult to help us.'** Although two frigates were required an option was given that the RNZN could supply one frigate if that was all that could be provided. In a letter the High Commissioner wrote:

**My Government feel [sic] some hesitation about asking you to continue this assistance but they would naturally welcome it, as otherwise the burden would have to fall on the Royal Navy, whose resources are already much strained.**<sup>99</sup>

Keith Holyoake reaffirmed the commitment of the frigates to the Task Force.<sup>100</sup> But the RN was told that only *Pukaki* would be available as *Rotoiti* was undergoing a major refit in early 1958 and then would be replacing the cruiser HMNZS *Royalist* as RNZN's contribution to the Far East Strategic Reserve.<sup>101</sup>



Unless *Rotoiti* was released by the Far East Fleet from her commitment in May she would not play any role in the 1958 test series.<sup>102</sup> As it turned out HMS *Ulysses* took *Rotoiti's* place.<sup>103</sup>

The High Commissioner wrote back saying that

**The United Kingdom Government are most grateful for the willingness of the New Zealand authorities to help them and accept your offer with appreciation. The Royal Navy will provide the second frigate for the first test.**<sup>104</sup>

The follow-up to Holyoake's commitment by the United Kingdom was in reaction to the Labour party's victory in the 1957 election held in November. There were those within the Labour party that supported a halt to New Zealand's participation in the GRAPPLE programme and went as far as to state the Labour government 'would oppose all further tests of nuclear weapons.'<sup>105</sup> Suddenly that firm commitment looked very shaky.

As a public servant in External Affairs recorded in a December 1957 memo:

**Are we not duty bound (in view of Labour's expressed views on the question of tests) to bring this commitment (to assist in the 1958 programme) to the notice of the Labour leaders in the near future (i.e. before RNZN sources leaked to the media).**<sup>106</sup>

The High Commissioner for the UK sent a secret memorandum to new Prime Minister Walter Nash in, December 1957 in quest of Labour's formal position on nuclear testing.

Nash hesitated to reply and in early January 1958 the High Commissioner wrote to Nash seeking:

**Your confirmation that they [GRAPPLE planners] could continue to plan on the basis of the promises of assistance already made to them by your predecessor.**<sup>107</sup>

Many Labour supporters wanted the frigates withdrawn for the 1958 programme. However, on 13 January Nash agreed to fulfil the undertakings that the previous government had made in November 1957 regarding assistance to the 1958 testing programme.<sup>108</sup>

The 1958 deployment was far more politically sensitive than the tests in 1957. New Zealand's policy was to **'help and not hinder'** the RN and a memo from the Secretary for External Affairs to the Navy Secretary in January stressed that the secrecy of these forthcoming tests need to be preserved. The United Kingdom had delayed the announcement so that it would not succumb to pressure to end the testing.<sup>109</sup>

The risk of suspension or cancellation of the tests was characterised as 'a victory for Soviet propaganda which is to neutralize and discredit the deterrent...'<sup>110</sup> MacMillian in a personal note to Nash noted that the public opinion of holding another series of tests **'may be highly unfavourable'** and that **'this criticism is bound to grow.'**<sup>111</sup>

By mid March the United Kingdom was asking New Zealand to provide a 'cover story' for the deployment of *Pukaki* while in turn the Ministry of External Affairs was pushing for a formal announcement of the resumption of testing as it was **'a delicate political question for the Government who was under some pressure publicly to explain the movements of a RNZN frigate.'**<sup>112</sup>

*Pukaki* arrived at Christmas Island on 12 April 1958 and began a series of weather patrols. As per the 1957 tests a RN party was taken onboard. On the morning of 28 April 1958 she took up her position 80nm (148km) east of surface zero. This thermonuclear weapon produced a yield of 3 megatons, the highest of the GRAPPLE series. The next day *Pukaki* passed through surface zero. She left Christmas Island on 2 May and arrived at Devonport Naval Base on 18 May 1958.<sup>113</sup>

Harold MacMillian spoke in the House of Commons the day after the 28 April test in response to criticism that the United Kingdom was testing and stated that **'we ought to have the bomb and not abandon it, but use it as an instrument of negotiation so it is just as well we should have had the last test.'**<sup>114</sup>

**But there would be more tests required.**

On 14 July 1958 the United Kingdom's High Commissioner in Wellington wrote to Nash:

**My government has expressed the hope that the New Zealand Government will continue to extend the cooperation hitherto given during this series [of nuclear tests]. The details of this cooperation are being taken up through Service and official channels.<sup>115</sup>**

Nash was advised that the tests needed to be completed before a halt to nuclear testing was agreed to by the nuclear powers.<sup>116</sup>

Nash confirmed the participation of a RNZN frigate for the final series of GRAPPLE tests.<sup>117</sup> *Pukaki* departed Devonport Naval Base for Christmas Island on 23 July 1958. This time the RNZN's Senior Chaplain Reverend Henry Taylor was aboard as he had been appointed as the Grapple Squadron's Chaplain for the final series of tests. Also joining the ship for this last series was an Admiralty scientist.<sup>118</sup>

*Pukaki* followed the same pattern of operations as had been followed in 1957 and earlier in the year.<sup>119</sup> The first weather patrols were undertaken between the 8 & 13 August. On 16 August she joined the Whitby-class frigate HMS *Scarborough* on patrol. Due to overcrowding aboard the frigate, two RNZN officers were detached and sent to *Scarborough*. On 22 August 1958 *Pukaki* was stationed 28nm (52km) east of surface zero. *Pukaki* was also stationed as a weather ship for the 2,&11 September tests and the final and last British atmospheric test held on 23 September 1958.<sup>120</sup>

Following the test, *Pukaki* launched the last of the weather balloons and returned to Christmas Island on the evening of 23 September. The next day the equipment was offloaded and she departed from Christmas Island on 25 September and arrived at Devonport Naval Base on 9 October 1958.<sup>121</sup> This concluded the participation of the RNZN in Operation GRAPPLE.

In November 1958 the New Zealand Government received a note **'expressing the warm appreciation of the United Kingdom Government...for their assistance in this matter [nuclear testing] over the last year.'**<sup>122</sup>

I would like to now would like to jump forward to 1973 and the French atmospheric testing – the Protest part of the paper. But just let me say that in the years between participation and protest there were many opportunities for further cooperation for example the Indonesian Confrontation. The new frigates HMNZS *Otago*, *Taranaki*, and the cruiser *Royalist* served alongside RN and RAN vessels. In 1965 the RN lent to the RNZN two Ton-class minesweepers HMNZS *Hickleton* and *Stanton* that served with New Zealand crews as part of the RN 11<sup>th</sup> Minesweeping flotilla until late 1966. As an aside, HMNZS *Hickleton* is the last RNZN vessel to have fired its guns in anger.

## Norm's Mystery Tour Slide

Public opposition to nuclear testing in New Zealand began to expand at the end of the GRAPPLE programme. After a brief moratorium the USA resumed atmospheric tests at Christmas Island in 1962 but then reverted to underground testing. China then joined the nuclear club with its first test. The nuclear arms race led France to become the third country to use the Pacific as a testing site

France started its nuclear programme in 1951 and first conducted a test at the Reggane site in Algeria in February 1960.<sup>123</sup> Wellington at the time considered it an attempt by France **'to prove she is a power who should have as much "say" as the United States and the United Kingdom in the conduct of the West's affairs in a nuclear age.'**<sup>124</sup>

The Royal New Zealand Navy played a significant role in sending a frigate to protest French nuclear testing in the Pacific in 1973. It is a unique act in New Zealand political history. It showed how much the government had changed its views from participation in the 1950s with Operation GRAPPLE to outright opposition. It was also a unique situation where a warship was sent to operate off another nation's colony not as an act of war or provocation, but as a political protest.

There are those in New Zealand who have argued that **'New Zealand could support nuclear testing by Western Powers generally and oppose French nuclear testing in the Pacific without inconsistency.'**<sup>125</sup>

After granting independence to Algeria, France looked to the South Pacific for a new test range much in the same way that Britain had a decade earlier. In 1963 the New Zealand government announced that the French government had decided to move their atmospheric testing programme to Mururoa and Fangataufa Atolls, part of the Tuamotu Archipelago, located around 1200kms southwest of Tahiti.<sup>126</sup>

At this point the New Zealand government first formally expressed its concern at the proposed testing programme in 1963 with representations to the French government, the process continuing through diplomatic channels and inter-governmental meetings up to the end of 1973. The French response to the 1963 notes was:

**it is not acceptable [to France] that a [systematic] campaign of this kind be carried on against French [nuclear] tests should be carried on in a country with which France has particularly friendly relations.<sup>127</sup>**

The main objection to the French Testing Programme was the hazard from fallout to the people of New Zealand, the Cook Islands, Niue, and Tokelau Islands.<sup>128</sup> New Zealand had monitored the testing and had recorded fallout over all these areas despite the French attempts to mitigate the effects of the tests and the supposed 'safer' location.<sup>129</sup> A report from the CIA in 1964 noted that 'Australia, New Zealand and Chile have already officially objected to the establishment of the test site.'<sup>130</sup>

A 1960s CIA report released in 2006 noted that the French testing had 'a good safety record' but had over time remained 'a rallying point for anti-nuclear forces in the region.'<sup>131</sup> France conducted the first atmospheric test on 3 July 1966.<sup>132</sup> France declared a prohibited zone around Mururoa Atoll and Hao Island in 1965 but it also declared 'Dangerous Zones' during the tests themselves. These were not fixed and could be of any size and shape dependent on the test and French concerns.

By 1972, the French Navy and Air Force operating from the test site were actively interfering with foreign shipping.<sup>133</sup> A secret CIA report in early 1973 noted that a new season of atmospheric testing was due to be conducted by France and that

**the impending tests have evoked vigorous protests from a number of countries in the South Pacific, and Paris had admitted that the outcry this year has been especially strong. The French government however, has made it clear that it will proceed with the tests, that it will not be**

bound by any decisions of the organisations, and that it considers the protests to be hypocritical.<sup>134</sup>

During the testing programme from 1968 to 1972 New Zealand sent formal protests to the French government.<sup>135</sup> Although there were those in New Zealand that agreed with the French view that New Zealand was being hypocritical.

By 1972, New Zealand in coordination with Australia made many representations to various international bodies such as the UN Committee on Disarmament, Committee on Peaceful Uses of the Seabed, ANZUS and ASEAN.<sup>136</sup> Despite this support, Wellington was not always convinced that Australia was fully supporting the action given the feeling in New Zealand that **'nuclear testing throws a profound strain on relations between France and New Zealand.'**<sup>137</sup>

The realisation was that Australia was often ambivalent to New Zealand's anti-nuclear stance and would rather side with the United States over moral issues in foreign policy.<sup>138</sup>

In late 1972, failure to force a cessation of France's atmospheric testing due to a lack of support amongst UN members led NZ diplomats in New York to warn that neutralising resolutions against atmospheric testing

**increase frustration in the Pacific region and increase pressures on New Zealand and other governments [presumably the island states] for less palatable forms of action which have so far been resisted in favour of an approach through UN Channels...rather than to provoke a direct confrontation.**<sup>139</sup>

During the 1972 elections the Labour Party announced that if elected it would send a frigate to Mururoa with a Cabinet Minister aboard in order to further the protest against French atmospheric testing.

However, Labour was acutely aware it had to proceed along a very narrow path on the one hand appeasing its supporters by being seen to be doing something about the testing while on the other acknowledging that the

balance of trade was in favour of New Zealand and that France could limit New Zealand's access for our exports into Europe.<sup>140</sup>

In November 1972 on orders from the PM's office, Naval Staff in Wellington began work on the operational plan for a frigate to sail to Mururoa to protest the next series of testing starting in July 1973.

France, which considered their results from the 1972 series of tests to be less than satisfactory, planned a further two tests in 1973. It was reported at the time that French was testing detonators for their thermonuclear devices which had been developed in 1968.<sup>141</sup>

Already talk was of sending a warship as protest in January 1973.

**Gough Whitlam publically stated on 24 January that he had 'not ruled out cooperation with New Zealand in sending a warship into the French nuclear test zone if necessary. But Australia and New Zealand were not assuming that the French would resume the tests.'**<sup>142</sup>

Prime Minister Norman Kirk's letter to the French Government in March of 1973 claimed that continued French atmospheric testing was a "**violation of New Zealand's rights under international law**"<sup>143</sup> and sought an assurance as to when the testing programme would end. France demurred and strongly contested the assertion.

The New Zealand government then advised that it would seek legal remedy via the International Court of Justice. This was part of the commitment made by Labour and consistent with their 1972 policy of '**opposing all tests of nuclear weapons.**'<sup>144</sup> France refused to recognise the status and ability of the Court to rule on the Australian and New Zealand injunction. In the French view, the court was outside its authority when dealing with matters of France's national defence.<sup>145</sup>

## **Slide 21 Cartoon send a gesture**



By May 1973 New Zealand sought other means to run parallel to the legal avenue of protest at the risks these tests posed. Kirk's government soon decided upon taking unilateral action. There were two parts to the action:

1. The government would offer public support to the protest fleet being organised to sail to Mururoa. Note that this stopped short of logistical assistance because at the RNZN fleet was without such a vessel as the most tanker HMNZS *Endeavour* II had been decommissioned in 1971. If any ship was to come it would need to be from the RN or RAN.
2. Deploy a Naval vessel with a cabinet minister aboard 'to support the private protest boats and dramatise the depth of official concern.'<sup>146</sup>

The *Dominion* reported on 5 May 1973 that the RNZN had decided which of its frigates were to be deployed to Mururoa.<sup>147</sup> *Otago* would be going the paper reported to make good on Kirk's pledge to demonstrate the extent of the Labour Government's opposition to the nuclear tests.<sup>148</sup>

While the first part of the unilateral action was simply political grandstanding for a domestic audience, the second part needed actual logistical assistance from a navy that was prepared to cooperate.

## **Slide 23 Cartoon Trafalgar book**

In hindsight it is clear that Kirk made the decision without thinking through the logistics of the proposed operation. How our frigates were to be supported 4818km (2,600nm) away from base for a period of up to two months without a tanker was not given any thought by the politicians.<sup>149</sup> Undoubtedly the choice of sending a ship required another navy's support. so

There was public outrage against the testing in both countries. Geoff Whitlam did not support the New Zealand decision to send a naval vessel to Mururoa but was keenly aware from internal briefings that the RNZN could not keep a warship on station without support of some kind. Both had a mandate and a desire to make grand political gestures. Kirk lobbied Whitlam intensely for weeks to reconsider his stance on support for the frigates.

The consequences of the lobbying were described in *Supply's* June ROP:

**Activities in the ship throughout the month have been dominated by the projected deployment to the French nuclear test area at Mururoa atoll in support of a New Zealand frigate. The uncertainty of the commencement of the deployment, the length of it or even whether it would actually eventuate was generally disturbing to the Ship's Company.<sup>150</sup>**

The issue of replenishment at sea and the need for Australian assistance by New Zealand was also solved by the with the help of Bob Hawke, then leader of the ACTU who successfully pressured the Australian Government to send the tanker HMAS *Supply* as the support ship for the RNZN frigates. They would however, not be sending a warship along with the tanker.<sup>151</sup> The *Oxford Companion to Australian Military History* states that for HMAS *Supply* 'her most controversial role was to act as support ship to a New Zealand contingent near Mururoa protesting against the 1973 series of French nuclear tests.'<sup>152</sup>

## **Slide 24 HMAS Supply**

By June the rumour in Australia was that the ship was departing on a mission 'specially ordered by the government.'<sup>153</sup> The Whitlam government only agreed to the support for New Zealand '**as a last resort in trying to stop the tests.**'<sup>154</sup>

On Friday 22 June 1973, the CO of *Supply* warned the ship's company that their ship was likely to be sent in support of the *Otago* off Mururoa leaving on Monday 25 June. On Saturday afternoon the '**Supply's ship's company were informed unofficially via a news broadcasting service**'. On the morning of June 25 Captain Loosli officially informed the ship's company that SUPPLY would sail at 1200 which she did.'<sup>155</sup>

The ROP does note however that strikes on the wharf in June affected its ability to load efficiently.<sup>156</sup> Her capacity was stretched to take on the supplies

needed for the deployment. Fortunately the beer supply had already been loaded before Sydney's breweries were out on strike.<sup>157</sup>

HMAS *Supply* was fast fleet replenishment tanker that was originally ordered by the RAN but served with the RN as RFA *Tide Austral* until it was returned to the RAN and commissioned into service as *Supply* in September 1962.<sup>158</sup> By the time of her service to the RNZN she had undergone a major refit and was capable of supplying the fuel and water the NZ ships required along with food uplifted from Rarotonga.

The RNZAF and the RAAF would airlift supplies to Rarotonga for uplifting and replenishment of the RNZN frigates at sea.<sup>159</sup> Fortunately, the New Zealand government was never made aware as far as I can determine that the fuel the HMAS *Supply* provided to the RNZN frigates came through a contract with a French company.<sup>160</sup>

## Slide 25 Test Zones

On 7 June, Kirk announced in parliament that if any frigate that was sent into the French test zone '**would not enter territorial waters.**'<sup>161</sup> While it had been assumed that this would be the case, this was the first official public statement from the government which unequivocally demonstrated the intent of the deployment.<sup>162</sup>

On 20 June 1973, the New Zealand Defence Minister publicly announced that two frigates of the RNZN were on standby 'ready to sail into the nuclear test zone round the South Pacific atoll of Mururoa in protest against the French programme. It was emphasised that the contingency plan did not commit the Government to any final decision.

On 22 June 1973 the International Court of Justice issued a ruling on provisional measures:

The French Government should avoid nuclear tests causing the deposit of radio-active fallout on the territory of New Zealand, the Cook Islands, Niue, or the Tokelau Islands.<sup>163</sup>

France simply ignored this ruling and let it be known that it was about to conduct a series of tests for the year.

As the ships were being despatched to Mururoa, Norman Kirk sought support for a Commonwealth Ban on Nuclear Testing from Britain but was rebuffed because Britain was benefiting from data generated by the French tests.

## Operations

The first vessel deployed by the RNZN was HMNZS *Lachlan*. She conducted signal intelligence gathering and spent the period from 21 June to 1 July 1973 steaming off Rarotonga tracking and eavesdropping on French Radio communications and assisting HMNZS *Irirangi* with bearings, so that the directional aerials could be directed to listen into the French communications.

In a small token of cooperation *Lachlan* refuelled at sea from the RFA tanker *Tideflow*. Nevertheless the British made it very clear to the New Zealand government and the RNZN that they were not supporting the New Zealand protest action.<sup>164</sup> On 2 July 1973, HMNZS *Lachlan* returned. A course had been set to avoid HMNZS *Otago* so that *Lachlan's* part in obtaining signal intelligence was kept from the media contingent aboard *Otago*.

The *Otago* it was stated would behold herself in readiness until 8 July when *Canterbury* would take over.<sup>165</sup> Australia, it was reported, '**had intimated that it would take part in any such operation by offering assistance with a supply ship.**'<sup>166</sup> HMNZS *Canterbury* was the only RNZN frigate that could operate in a nuclear environment but was presently based at Pearl Harbour and would only be available for deployment to Mururoa by mid July at the earliest. She had engine problems while on deployment in June and only arrived in New Zealand two days after *Otago* had left.<sup>167</sup>

## Slide 26 HMNZS *Otago* leaving Auckland

With the French determination to conduct tests the political situation changed very rapidly by the last days of June. Preparations were brought forward and HMNZS *Otago* underwent a self-refit<sup>168</sup> and would be sent to Mururoa. The Minister for Immigrations and Mines Fraser Colman was selected as the Cabinet minister to sail with *Otago*. At the date of departure on the 28 June, Norman Kirk at a dockside press conference stated '**this is a mission of purpose**' and the voyage of *Otago* would '**ensure that the eyes of the world are riveted on Mururoa**'.

He assured New Zealanders that this voyage ‘**was not conceived in anger but born of deep concern**’<sup>169</sup>, and

**We are a small nation but in the interests of justice we claim the world’s attention...Today the Otago leaves on an honourable mission. She leaves not in anger but as a ‘silent accusing witness’<sup>170</sup> with the power to bring alive the conscience of the world ...and make a contribution to the continuing quest for peace and disarmament.**<sup>171</sup>

On 28 June the French government released a White Paper accusing New Zealand and Australia of having other motives than protesting against the harm of atmospheric testing. It asked ‘At the origins of certain campaigns is there not a desire to harm our [France’s] defence policy and contravene our will to independence?’<sup>172</sup> There was, in the eyes of the French government a “campaign of hostility” against the forthcoming French nuclear tests in the Pacific was “without serious scientific basis.”<sup>173</sup>

The chain of command went from the CO of the ship to the Chief of Naval Staff then to the Defence Council. The government did not interfere with the operation once the ship left New Zealand.<sup>174</sup>

The operational order stated that the Mission was:

**To proceed towards Mururoa without entering the Test Area. When so ordered, you are to operate within the Test Area in a manner best designed to achieve the Government’s policy objectives.**<sup>175</sup>

**This will be a symbolic gesture by a small country and the deployment of a frigate ‘is a major political protest against the French tests. [but] the voyage is to have no overtones of sabre rattling...’<sup>176</sup>**

*Supply* left Sydney and crossed the Tasman and passed ‘five miles north (9.2km) of North Cape’ on its way to meet the frigate.<sup>177</sup> The next day [28 June] Otago left Devonport in the afternoon and rendezvous with *Supply* on Friday morning 29 June 463km (250nm) east of North Cape.<sup>178</sup>

## Slide 27 media aboard HMNZS *Otago*

A trial replenishment at sea was carried out at 1400 with the media contingent aboard *Otago* interested bystanders.<sup>179</sup> There were nerves aboard the Australian ship as **SUPPLY had not done a RAS for some months, this was an ideal opportunity to get the rigs working smoothly again and get a good bit of world publicity.**<sup>180</sup>

The CO's of the frigates were advised that *Supply* would be sailing under the direct control of the RAN and the Australian government. The frigates would **'liaise directly with the logistical vessel to achieve tactical and support cooperation...arrangements for support will be on a request, not an order basis.'**<sup>181</sup> *Otago* would remain in company with *Supply* until 3 July.<sup>182</sup>

Both ships sailed north-eastwards in company while wind-direction balloons were released and tracked with the fire-control radar so *Otago* would be able to measure patterns of fallout. The crew was kept busy undertaking NBCD (Nuclear, Biological, and Chemical Defence) exercises every day while both ships carried out joint exercises.<sup>183</sup> Having embarked the journalists now worked to the government's advantage. When HMAS *Supply* came alongside for refuelling on 30 June<sup>184</sup> the process was recorded on film and sent for broadcast. This engaged the Australian public's 'sympathy for the initiative.'<sup>185</sup>

## Slide 28 HMAS *Supply* alongside.

The two ships exchanged personnel for a 24 hour period. 'Those who went from SUPPLY found the Kiwi an interesting change. One thing that caught the Australian's attention? The daily issue of the rum tot as well as the beer issue. It was arranged that *Otago* would transmit a request for RAS from the Australian ship when necessary. The tanker was under direct orders to come within 222km (120nm) of Mururoa. RAS would be carried out in a 'support area' provided it did not stop the frigate from being able to observe the test. It was recommended that there be a 10 day gap between RAS although in practice it never met that stated objective.'<sup>186</sup>

On 3 July that CO of *Otago* was able to report that:

**SUPPLY. Relationship is excellent. Quite naturally, SUPPLY is keen to work up after her refit and this has tended to conflict with OTAGO's special-to-role training requirements, but this has not presented any undue difficulty. A balance has been struck which is mutually beneficial.**<sup>187</sup>

A RAS was carried out that day.<sup>188</sup>

## **Slide 29 HMNZS *Otago* Raro juice**

The last RAS before *Otago* voyaged to Mururoa was carried out at 1600 4 July 1973.<sup>189</sup> *Supply* voyaged to Rarotonga by 5 July to pick up the air freighted supplies and drop off mail. The ship's company now had a pleasant two day holiday if the reports in the *Navy News* are to be believed.<sup>190</sup>

On 4 July, *Otago* received orders from Wellington to pass into the French-declared 'Intermediate Area'<sup>191</sup> with instructions to contact by Morse code twice a day an unidentified radio station, it was discovered later this was the safety link to the French authorities. The action was initiated by the French response to Kirk's note of 23 June when France stated that it would proceed with its tests despite the presence of the *Otago*. Norman Kirk assured them that the frigate would not enter French territorial waters<sup>192</sup>

## **Slide 30 *Otago* - balloons and officer**

The warship would operate in what the French called their 'danger zone'. France then advised it was activating the test zone equal to 222km (120nm) around the test site, the area that *Otago* would be entering. She would occupy and 10nm wide observation area outside the territorial sea around Mururoa.<sup>193</sup>

On 5 July *Otago* was informed that HMNZS *Canterbury* would be replacing her on station later in the month. France formally activated the test zone on 8 July 1973 and a French Dunkerque-class minesweeper appeared three miles off the stern of the *Otago* and it shadowed the ship until contact was broken when *Otago* changed course.<sup>194</sup>



*Supply's* next RSA with *Otago* occurred on the evening of 9 July 1973. The men on *Otago* nicknamed *Supply* 'Mamma Sup' and that her 'assistance and cooperation...was outstanding.'<sup>195</sup> This was despite some confusion over the precedence of signals between the two ships.<sup>196</sup>

At the next RSA on Thursday 12 July, a mushroom cloud loaf was presented to the New Zealand ship by *Supply's* baker.<sup>197</sup> And just like the frigate, the French buzzed *Supply* with Neptunes usually twice a day. This set the pattern of operation until the first device was detonated on 21 July. *Otago* would sail into the zone until 23 July maintaining a course to avoid territorial waters but would sail in and out of the zone to rendezvous with *Supply* to replenish fuel and provisions.<sup>198</sup> They would also release weather balloons and track them.<sup>199</sup>

## Slide 31 Fraser Coleman MP

The writer of the *Navy News* article noted that for the media aboard *Otago* it was a 'historic occasion' 'inasmuch that the presence of two ships in the nuclear zone represented the determination of the Australian and New Zealand governments to carry to the limit possible their objection to France carrying through the nuclear test.'<sup>200</sup>

It is clear that there was to be no interaction with the ANZUS partners. No mention was made of the New Zealand frigates or the Australian supply ship but The task force commander reported that the presence of two USN vessels and helicopters 'appeared to cause no adverse reactions by the French.'<sup>201</sup> The USS *Wheeling* was despatched to be 'an essential observation platform to acquire important data from a foreign atmospheric nuclear test.'<sup>202</sup> Her mission was not to be publicly announced but was seen as a 'valuable means of expanding American knowledge about the effect of nuclear weapons for relatively moderate amounts of money.'<sup>203</sup>

Along with this there were the RN RFA *Sir Percival*, USSR research vessels *Akademic Shirshov* and *Volna* plus a Chinese fishing vessel gathering signal

intelligence!<sup>204</sup> All the major nuclear powers had naval forces acting as observers of the test. In this 'great game' of intelligence gathering only the RNZN was acting in a protest role.

## **Slide 32 colour image of detonation**

On the morning of 21 July *Otago* was 21.5nm (40km) from the detonation point when the device was tested.<sup>205</sup> The ship's company was disappointed with the size of the cloud.<sup>206</sup> Later on she conducted her final RAS with *Supply*.

## **Slide 33 Fraser Coleman anti-flash**

## HMNZS Canterbury

### Slide 34 HMNZS Canterbury

After arriving from Pearl Harbour on 1 July, the Government announced on 12 July announced that *Canterbury* was going to Mururoa to take over from *Otago*.

She departed on 14 July. *Canterbury* was equipped with the RNZN's first on-board computer nick-named 'Clarence' that would be used to monitor the yield of the French bomb and fallout.<sup>207</sup> She carried out her first RAS with *Supply* on 19 July. *Canterbury's* Wasp was used to transport supplies between the ships along with the jackstay.<sup>208</sup>

### Slide 35 HMAS Supply jackstay

Despite being hampered by contamination in the port boiler on the 20<sup>th</sup>, *Canterbury* reached point "BB" on the 22<sup>nd</sup> to rendezvous with *Otago*.<sup>209</sup> *Otago* was ordered back to Mururoa to observe what was thought to be the second test. While *Canterbury* fixed some engineering issues, *Otago* remained on duty and moved to a new location for observation. That afternoon she rendezvoused with *Supply* for fuel and provisions – some of which were ruined in cardboard cartons by salt water despite the RNZN requests for wooden packaging.<sup>210</sup>

On 23 July *Otago* transferred some equipment and personnel *Canterbury*. *Canterbury* was then subject to the same level of inspection that *Otago* had experienced from the surveillance planes. Both *Otago* and *Canterbury* carried out a RAS with *Supply* this day. HMAS *Supply* also took two RNZN personnel aboard to return them to New Zealand for compassionate reasons this was made possible by the Australian ship being present and was 'a great morale booster' for *Otago's* ship's company.<sup>211</sup>

On 25 July As per orders issued to *Canterbury* the frigates rendezvoused for the last time and *Otago* handed over the equipment for monitoring the tests

along with Fraser Colman and the media party. Due to sea conditions the helicopter was used to transfer between the frigates.<sup>212</sup> *Otago* had departed for Auckland and a further rendezvous with *Supply*.<sup>213</sup> The final one was 28 July and *Otago* then proceeded to Auckland.<sup>214</sup> This was a record for the ship while underway and the 9237.5nm (17119kms) steamed was only possible with the assistance of HMAS *Supply*.<sup>215</sup>

The CO of *Otago* noted in his report that

**Her [*Supply*'s] service had been outstanding and very much appreciated by all in OTAGO. For us the glamour, for her the drudgery. SUPPLY deserves a big hand for her work in the support role.**<sup>216</sup>

After a delay noted by the *Canterbury* from the radio traffic in the morning of 28 July,<sup>217</sup> a device was detonated at 1032 feet. There were some hold-ups in the countdown and an alarm was sounded that caused the French fleet to sail southwards. *Canterbury* followed in order to avoid the potential fallout zone.<sup>218</sup> The explosion was not heard or seen by men on the *Canterbury*.

It was a much smaller yield than the previous test and could not be recorded. Tiny amounts of fallout were recorded and did not pose a danger for the crew. There was some thought that this was a nuclear trigger rather than an operational bomb based on the measurements recorded.

*Canterbury* undertook a RAS with *Supply* on 31 July three days after the test.<sup>219</sup> The Australian ship also participated in OOW manoeuvres with the junior officers aboard the frigate.<sup>220</sup> The next resupply was undertaken on 4 August followed by 8 August. At this point the frigate was ordered back to New Zealand.<sup>221</sup>

The protest vigil could only be maintained with the logistical support of the RAN the deployment was in their hands. On 3 August 1973 the Minister of Defence, Arthur Faulkner announced that *Canterbury* would return to New Zealand because the decision to withdraw *Supply* had been made by the Australian government. The minister stated:

**We have always recognized that logistic consideration would limit the length of time the frigate could remain on station in the Mururoa area<sup>222</sup> and 'the return of the ship [*Supply*] will take place in accordance with plans prepared before the operation began by agreement with the Australian Government.'<sup>223</sup>**

He went on to describe the deployment as

**A turning point in the campaign against French nuclear tests because their [the frigates] presence hand concentrated world attention on the test issue "to an extent which may have surprised some critics but no the Government."<sup>224</sup>**

The CO of *Otago* described the operation as:

**I am left with the feeling that the Mururoa deployment did the Royal New Zealand Navy a power of good, both in coping with an extended operation and in proving that given a job to do, no matter how contentious or unusual, the New Zealand Armed Forces will get on with the tasks and produce the results.**

The RNZN summary of the operation noted that the frigates were '**an official tool of the government, and the ideal vehicle on which to base witnesses to the events.**<sup>225</sup> The 1974 MOD annual report noted that the '**without this support [from the RAN] the frigates could not have remained on station for the length of time required to maintain the presence in the test zone.**<sup>226</sup>

Dependence on the RAN showed the need for a replenishment tanker of our own and there was hope in the RNZN that a replacement for the *Endeavour* would be forthcoming shortly.<sup>227</sup> However we did not get one until 1988.

To show that this was not the only form of cooperation 1973, in late September and early October *Canterbury* and *Otago* participated in exercise LONGEX 73 with ships from the RN, RAN, USN and Royal Netherlands

Navy.<sup>228</sup> Ten RAN vessels and two RN vessels visited New Zealand ports in 1973.<sup>229</sup>

And what the New Zealand MP aboard the frigates think about the protests?

## **Slide 36 Fraser Coleman – cheers**

To finish off this survey of cooperation I want to briefly consider Operation Valerian – the deployment of a RNZN to Mururoa in 1995.

## Slide 37 Cartoon – Chirac’s ticking Gift

### Operation VALERIAN

This was an naval deployment operation that New Zealand would not get any cooperation from Commonwealth Navies. Although we were sending a ship it was not about protest this time more a bystanding role.

On 13 June 1995 President-elect Jacques Chirac announced the resumption of underground nuclear testing at Mururoa. He believed in the *Force de frappe*<sup>230</sup> and wanted the testing carried out that was required for the new TN-75 warheads that were to be fitted to ballistic missiles carried on French submarines.<sup>231</sup> Two reasons given for the resumption of testing was to verify the safety and reliability of the devices and to develop warheads with better yield-to-weight ratios.<sup>232</sup>

The Cabinet was already aware in early May that a resumption of the testing was likely and had begun to discuss a strategy of responding. At this point sending a naval vessel was not on the list of proposed responses.<sup>233</sup> They were aware that Chirac had committed himself to a new series of tests as part of his election campaign **‘if it [France] wants to be able to do without them afterwards.’**<sup>234</sup>

The Minister for Foreign Affairs at the time Don McKinnon was very clear that France was making an effort in the South Pacific and had been supporting New Zealand’s interests so our response should not affect the relationship with economic consequences.<sup>235</sup> He wanted his cabinet colleagues to keep in mind the **‘implications for New Zealand’s interests of the various options [he put forward] for further measures to record New Zealand’s concern.’**<sup>236</sup>

The next day Prime Minister Jim Bolger advised the house of the resumption. His calculated outrage for a brief moment unified Parliament and a statement was issued deploring the French.<sup>237</sup> It was proposed that another frigate be

sent in a repeat of 1973.<sup>238</sup> This time of course we would not have to rely on the RAN as we now possessed a fleet tanker HMNZS *Endeavour*. In light of the Rainbow Warrior bombing a decade earlier the outrage is understandable. A poll taken in July 1995 indicated that 63% of those polled supported sending a frigate and 86% wanted some form of direct action.<sup>239</sup>

Despite the public outcry, Australia would not deploy a naval vessel arguing that a naval vessel should be used for naval purposes i.e. naval warfare.<sup>240</sup> Wellington took the view that Australia's stance while being more adamant than New Zealand's was a belated and exaggerated gesture to placate anti-nuclear domestic interests rather than an international expression of disappointment.<sup>241</sup> Foreign Minister Gareth Evans commented that New Zealand's stance and action of sending a naval vessel '**muscle-bound**' and **hypocritical grandstanding**.<sup>242</sup>

He later regretted those comments as the Australian government responded to domestic pressure for a response to match that of the New Zealanders.<sup>243</sup> The Liberal opposition had argued for sending a frigate only to be accused of '**adolescent grandstanding of the worst kind**' by Evans.<sup>244</sup> Evans wished to keep things in proportion and made the point that this was not a repeat of 1973 – the tests were underground and the French had stated there were to be a limited series.<sup>245</sup> However other state and federal politicians were entranced by the prospect of sending a protest ship to Mururoa. The Federal government even committed \$200,000 towards a vessel that had been chartered. The effort came to naught when the vessel was declared unseaworthy.<sup>246</sup>

Both Paul Keating and Jim Bolger realised that they needed to present a united front and endorsed each other's efforts and tried to avoid one-upmanship. But they stopped short of a joint campaign '**citing significant differences of emphasis**.'<sup>247</sup> The National Government was made very aware that using a warship in the way intended by New Zealand was not a fit and proper purpose for warships.



On 18 July 1996 Prime Minister Jim Bolger announced that there was broad agreement to send a RNZN ship to support the protest fleet. HMNZS *Tui* was identified as the ship to be sent to Mururoa and it was also agreed that MPs would voyage to the testing zone.<sup>248</sup> The RNZN would be sending an unarmed oceanographic research ship and not a warship; a gesture intended not to antagonise the French further.

### **Slide 38 Bolger coming on HMNZS *Tui***

Just like *Otago* in July 1973 *Tui* would be another 'silent witness'.<sup>249</sup> But this time *Tui* was under strict orders neither to breach the French exclusion zone nor to give any assistance to the protest fleet unless it was 'emergency succour required by maritime convention.'<sup>250</sup>

### **Slide 39 HMNZS *Tui***

*Tui* departed Auckland for Mururoa on 14 August 1995.<sup>251</sup> The voyage would be under the control of the RNZN with an interdepartmental 'watchgroup' providing guidance on the legal, political, and media aspects of the operation.<sup>252</sup> In contrast to Mururoa, this operation was more intensely micromanaged from Wellington. Adding to the burden of command were the MPs aboard.

As she sailed to Rarotonga the commanding officer had '**some doubt as to the sea worthiness of the two embarked politicians.**'<sup>253</sup> The satellite communications system received many calls from the media in New Zealand getting updates on seasickness of the MPs. The highly excitable politicians who failed to appreciate customs of the naval service when a French naval vessel was met on the high seas.

### **Slide 40 Greenpeace cartoon**

Pressure was also applied by the MPs who wanted *Tui* to enter French territorial waters to make short cuts to meet up with the protest fleet. The two tests were conducted on 5 September and 1 October. The second one was missed by the politicians who were aboard one of the protest vessels in discussion about what sort of response to send to France about the first test.

## Slide 41 Well Done MPs cartoon

The post deployment report indicated that ‘from a military perspective, the mission was achieved’<sup>254</sup> but that ‘a number of difficulties that arose with the passengers could have been averted had proper vetting been conducted...’<sup>255</sup> It was also recommended that ‘passengers on a politically orientated deployment such as this one...be subject to background checks.’<sup>256</sup>

### Conclusion

The question I started with when I began this paper was if the RNZN participation in Nuclear Testing was a good example of Commonwealth Naval Cooperation.

New Zealand naval forces have had a long a close history of cooperation with Commonwealth Navies. This has ranged from the gifting of battlecruisers, payments to the RN, provision of dockyards, provision of trained manpower, to participation in nuclear testing. We have also had non-cooperation for the Mururoa protests which was forcibly changed by actions of a non-naval political organisation. Without that it is hard to see if the protests could have been sustained. Finally, we went it alone using our naval vessels in a way that other countries would not.

I thank you for your kind attention.

## **Bibliography**

### **Secondary Sources:**

Arnold, Lorna, *A Very Special Relationship: British Atomic Weapon Trials in Australia*, London: HMSO, 1987.

Blakeway, Denys, Lloyd-Roberts, Sue, *Fields of Thunder: Testing Britain's Bomb*, London: Unwin, 1985.

Burchill, Scott, Cox, Dave, Smith, Gary, *Australia in the World: An Introduction to Australian Foreign Policy*, Melbourne: Oxford University Press, 1996.

Colledge, J.J., *Ships of the Royal Navy: The Complete Record of All Fighting Ships of the Royal Navy from the Fifteenth Century to the Present*, London: Greenhill Books, 2003.

Cox, Dave, Leaver, Richard (eds.), *Middling, Meddling, Muddling: Issues in Australian Foreign Policy*, St Leonards: Allen & Unwin, 1997.

d'Alpuget, Blanche, *Robert J. Hawke*, Melbourne: Schwartz Penguin Books, 1984.

Danielsson, Bengt and Marie-Thérèse, *Mururoa Mon Amour: The French Nuclear tests in the Pacific*, Revised English translation edition, Harmondsworth: Penguin Books, 1977.

Firth, Stewart, *Australia in International Politics: An Introduction to Australian Foreign Policy*, 2<sup>nd</sup> Ed., Crows Nest: Allen & Unwin, 2005.  
\_\_\_\_\_, *Nuclear Playground*, Sydney: Allen & Unwin, 1987.

Hayman, Maurice, *Those Useless Wings, Operation Grapple*, Privately Published, n.d..

Hill, J.R, *The Oxford Illustrated History of the Royal Navy*, Oxford: Oxford University Press, 1995.

Hoadley, Stephen, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005.

Hubbard, Keith, Simmons, Michael, *Dropping Britain's First H-bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008.  
\_\_\_\_\_, *Operation 'Grapple'*. London: Ian Allan, 1985.

Humphrey, Trevor John, *Do Shadows Leave Footprints?: The edited biography of a Nuclear Veteran from the 1952-1959 testing series*, Wanganui: Dotcom, 2006.

- McEwan, Andrew, *Nuclear New Zealand: Sorting Fact from Fiction*, Christchurch: Hazard Press, 2004.
- McGibbon, Ian, (ed.), *The Oxford Companion to New Zealand Military History*, Auckland: Oxford University Press, 2000.
- New Zealand Institute of International Affairs, *New Zealand in World Affairs* Vol. 1, Wellington: New Zealand Institute of International Affairs, 1977.
- Nossal, Kim Richard, Vivian, Carolynn, *A Brief Madness: Australia and the Resumption of French Nuclear Testing*, Canberra Papers on Strategy and Defence No. 121, Canberra: Strategic and Defence Studies Centre research School of Pacific and Asian Studies Australian National University, 1997.
- Oulton, Wilfred E., *Christmas Island Cracker: An Account of the Planning and Execution of the British Thermo-Nuclear Bomb Tests 1957*, London: Thomas Harmsworth Publishing, 1987.
- Robinson, Derek, *Just Testing*, London: Collins Harvill, 1985.
- Roberts, Nigel, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972.
- Sheehan, Michael, *The Arms Race*, Oxford: Martin Robertson, 1983.
- Stevens, David (ed.), *The Royal Australian Navy: A History*, Melbourne: Oxford University Press, 2006.
- \_\_\_\_\_, *Maritime Power in the Twentieth Century: The Australian Experience*, St Leonards: Allen & Unwin, 1998.
- Weisgall, Jonathan M., *Operation Crossroads: the Atomic Tests at Bikini Atoll*, Annapolis: Naval Institute Press, 1994.
- Wright, Gerry, *We Were There: Operation Grapple*, New Plymouth, Zenith Publishing, n.d.
- \_\_\_\_\_, *Operation Grapple: A Study of RNZN Ship Movements in Relation to Nuclear Test Fallout Patterns During Operation Grapple*, Unpublished Paper held by Museum, 2003.

**Primary Sources:**

**Newspapers**

*The Times*  
*New Zealand Herald*  
*Auckland Sun*  
*The Press* (Christchurch)  
*The Auckland Star*

**Archives**

**Held at Archives New Zealand Wellington Office**

Agency ABFK Series 7281 Accession W4266 Box 159 24/22/43 Estimates and Expenditure Operation Grapple 1957-1959

Agency ABFK Series 7395 Accession W4010 Box 34 62/6/1 Part 1 Operations General – Operation GRAPPLE 1959-1961

Agency ABFK Series 7607 Accession W5056 Box 114 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989

Agency ABFK Series 7607 Accession W5548 Box 163 3320/4/2 Part 2 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Tests 1989-1995

Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 3 International Affairs – Atomic Energy Military Uses Experiments 1/6/1956-31/12/1956.

Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957.

Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 6 International Affairs – Atomic Energy Military Uses Experiments 1/6/1957-30/3/1958.

Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59

**Held at RNZN Museum**

Archives:

EXM 0027 Ministry of Defence Annual Report 1974  
EXM 0037 Defence Ministerial Press Releases September 1950 to July 1975  
EXM 0038 Defence Ministerial Press Releases June 1958 to December 1964  
EXN 0010 Mururoa Nuclear Tests 1973  
EXO 0006 Operation GRAPPLE  
EXP 0027 RNZN Press Releases June 1958 to January 1962  
FZM 0002 Documents Relating to Mururoa 1973

Navy Orders:

RNZN Navy Orders 1973  
Operational Orders to HMNZS *Otago* 1973

## Reports of Proceedings

HMNZS *Canterbury* June, July, August 1973

HMNZS *Lachlan* 17 January – 9 March 1956

HMNZS *Otago* May 1973

HMAS *Supply* May, June, July 1973

HMS *Warrior* 19 May – 3 June 1957

Crawford, J.A.B., *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989. Bibliographical Note: This was a classified document when first produced. It was subsequently declassified.

---

<sup>1</sup> Wade Huntley, *Working Paper No. 126 Security or Spectacle?: Foreign Policy realism and Nuclear-Free New Zealand*, Canberra: Peace Research Centre, 1993, p. 7. Quoting from Keith Sinclair *Distance Looks Our Way*, p. 39.

<sup>2</sup> T.A. Brassey (ed.), *The Naval Annual 1909*, London: J. Griffin and Co, 1909, p. 12.

<sup>3</sup> David Stevens (ed.), *The Royal Australian Navy: The Australian Centenary History of Defence Volume III*, Melbourne: Oxford University Press, 2001, p. 188.

<sup>4</sup> Christopher Pugsley, *From Emergency to Confrontation: The New Zealand Armed Forces in Malaya and Borneo 1949-66*, Melbourne: Oxford University Press, 2003, p. 36.

<sup>5</sup> Christopher Pugsley, *From Emergency to Confrontation: The New Zealand Armed Forces in Malaya and Borneo 1949-66*, Melbourne: Oxford University Press, 2003, p. 38.

<sup>6</sup> Christopher Pugsley, *From Emergency to Confrontation: The New Zealand Armed Forces in Malaya and Borneo 1949-66*, Melbourne: Oxford University Press, 2003, p. 38. See also Burchill, Scott, Cox, Dave, Smith, Gary, *Australia in the World: An Introduction to Australian Foreign Policy*, Melbourne: Oxford University Press, 1996, p. 56. ANZAM – stood for Australia New Zealand and Malaya.

<sup>7</sup> Christopher Pugsley, *From Emergency to Confrontation: The New Zealand Armed Forces in Malaya and Borneo 1949-66*, Melbourne: Oxford University Press, 2003, p. 37.

<sup>8</sup> Christopher Pugsley, *From Emergency to Confrontation: The New Zealand Armed Forces in Malaya and Borneo 1949-66*, Melbourne: Oxford University Press, 2003, p. 37.

<sup>9</sup> Christopher Pugsley, *From Emergency to Confrontation: The New Zealand Armed Forces in Malaya and Borneo 1949-66*, Melbourne: Oxford University Press, 2003, p. 40.

<sup>10</sup> David Stevens (ed.), *Maritime Power in the Twentieth Century: The Australian Experience*, St Leonards: Allen & Unwin, 1998, p. 144.

<sup>11</sup> Stewart Firth, *Nuclear Playground*, Sydney: Allen & Unwin, 1987, p. 9.

<sup>12</sup> Stewart Firth, *Nuclear Playground*, Sydney: Allen & Unwin, 1987, p. 10.

<sup>13</sup> Lorna Arnold, *A Very Special Relationship: British Atomic Weapon Trials in Australia*, London: HMSO, 1987, p. 27-28.

<sup>14</sup> Denys Blakeway, Sue Lloyd-Roberts, *Fields of Thunder: Testing Britain's Bomb*, London: Unwin, 1985, p. 2.

<sup>15</sup> Maurice Hayman, *Those Useless Wings, Operation Grapple*, Privately Published, n.d., p. 18.

<sup>16</sup> Lorna Arnold, *A Very Special Relationship: British Atomic Weapon Trials in Australia*, London: HMSO, 1987, p. 76.

<sup>17</sup> Lorna Arnold, *A Very Special Relationship: British Atomic Weapon Trials in Australia*, London: HMSO, 1987, p. 76.

<sup>18</sup> Denys Blakeway, Sue Lloyd-Roberts, *Fields of Thunder: Testing Britain's Bomb*, London: Unwin, 1985, p. 144. See also *Evening Post* 24 December 1955.

<sup>19</sup> Wilfred E. Oulton, *Christmas Island Cracker: An Account of the Planning and Execution of the British Thermo-Nuclear Bomb Tests 1957*, London: Thomas Harmsworth Publishing, 1987, p. 8. See also Lorna Arnold, *A Very Special Relationship: British Atomic Weapon Trials in Australia*, London: HMSO, 1987, p. 77 and Stewart Firth, *Nuclear Playground*, Sydney: Allen & Unwin, 1987, pp. 16-17.

<sup>20</sup> Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, p. 58.

<sup>21</sup> Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, pp. 51-52.

<sup>22</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 3.

<sup>23</sup> PM 121/5/2 International Affairs, Atomic Energy, Military Uses Experiments: telegram from Eden to Holland n.d. but believed to be 16 May 1955.

<sup>24</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 3.

<sup>25</sup> Christopher Pugsley, 'Malayan Emergency', *The Oxford Companion to New Zealand Military History*, Ian McGibbon (ed.), Auckland: Oxford University Press, 2000, p. 294. See also Christopher Pugsley, *From Emergency to Confrontation: The New Zealand Armed Forces in Malaya and Borneo 1949-66*, Melbourne: Oxford University Press, 2003, p. 45.

<sup>26</sup> Ian McGibbon, 'The Defence of New Zealand 1945-1957', *New Zealand in World Affairs*, Volume I, Wellington: New Zealand Institute of International Affairs, 1977, pp. 169-170.

<sup>27</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 4.

- <sup>28</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 41.
- <sup>29</sup> Gerry Wright, *We Were There: Operation Grapple*, New Plymouth, Zenith Publishing, n.d., p. 16. See also PM 121/5/2 International Affairs, Atomic Energy, Military Uses Experiments: 'Brief Notes on Kermadec and Pitcairn Group' Office of Minister of Defence to Prime Minister 10 June 1955.
- <sup>30</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 5.
- <sup>31</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 4.
- <sup>32</sup> PM 121/5/2 International Affairs, Atomic Energy, Military Uses Experiments: telegram from Eden to Holland
- <sup>33</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 7.
- <sup>34</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 5.
- <sup>35</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 6.
- <sup>36</sup> HMNZS Lachlan Report of Proceedings 17 January – 7 March 1956. See also Wilfred E. Oulton, *Christmas Island Cracker: An Account of the Planning and Execution of the British Thermo-Nuclear Bomb Tests 1957*, London: Thomas Harmsworth Publishing, 1987, pp. 149, 180, 252.
- <sup>37</sup> Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, p. 51.
- <sup>38</sup> Agency ABFK Series 7607 Accession W5056 Box 114. 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989. Report of Proceedings for HMNZS *Lachlan* dated 12 March 1956 for the period 17 January – 9 March 1956, p. 1.
- <sup>39</sup> Agency ABFK Series 7607 Accession W5056 Box 114. 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989. Report of Proceedings for HMNZS *Lachlan* dated 12 March 1956 for the period 17 January – 9 March 1956, p. 2.
- <sup>40</sup> Agency ABFK Series 7607 Accession W5056 Box 114. 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989. Report of Proceedings for HMNZS *Lachlan* dated 12 March 1956 for the period 17 January – 9 March 1956, p. 2.
- <sup>41</sup> Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, pp. 52-53.
- <sup>42</sup> Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, p. 191.
- <sup>43</sup> Derek Robinson, *Just Testing*, London: Collins Harvill, 1985, pp. 161-162, 165.
- <sup>44</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 4. See also draft press statement for Minister of Defence and External Affairs T.L. MacDonald dated 28 February 1957.
- <sup>45</sup> EXO 0006 Operation GRAPPLE – background document D12/1/1 dated 1 January 1987.
- <sup>46</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 3 International Affairs – Atomic Energy Military Uses Experiments 1/6/1956-31/12/1956. Letter from High Commissioner to Minister of Defence dated 26 July 1956.
- <sup>47</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957. Memorandum for Minister of External Affairs from Navy Office dated 17 January 1957.
- <sup>48</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 3 International Affairs – Atomic Energy Military Uses Experiments 1/6/1956-31/12/1956. Letter from High Commissioner to Minister of Defence dated 26 July 1956.
- <sup>49</sup> *ibid.* See also NA 016/8/52 Operations-Training Operation Grapple – UK High Commissioner Wellington to Minister of External Affairs 26 July 1956. See also Andrew McEwan, *Nuclear New Zealand: Sorting Fact from Fiction*, Christchurch: Hazard Press, 2004, 105 and J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 8.
- <sup>50</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 7.
- <sup>51</sup> *ibid.* See also NA 016/8/52 Operations-Training Operation Grapple – UK High Commissioner Wellington to Minister of External Affairs 26 July 1956. See also Andrew McEwan, *Nuclear New Zealand: Sorting Fact from Fiction*, Christchurch: Hazard Press, 2004, 105 and J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 8.
- <sup>52</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 7.
- <sup>53</sup> NA 06/46/10 extract from dated 3 October 1956. HMNZS *Hawea* was chosen originally but it was decided to bring *Rotoiti* out of reserve.
- <sup>54</sup> *Auckland Star* 13 April 1957. See also J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 10.
- <sup>55</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957. Diplomatic Cable dated 5 February 1957 London Press Service. Quote from Undersecretary for Foreign Affairs Ian Harvey.
- <sup>56</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957. Draft note for Minister of External Affairs dated 20 March 1957.

- <sup>57</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957 – file contains reports and cutting about the Japanese protests and suggests it is Communist influenced.
- <sup>58</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 11.
- <sup>59</sup> EXO 0006 Operation GRAPPLE – Warrant Commission to Lieutenant Commander W J Brown CO of HMNZS *Rotoiti* undated.
- <sup>60</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957. Memorandum from Prime Minister's Office to Minister of External Affairs dated 12 February 1957.
- <sup>61</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957 Press statement dated 5 March 1957 from Department of External Affairs
- <sup>62</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957. Draft Press Statement 15/2/1957.
- <sup>63</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 5.
- <sup>64</sup> Appendix F to GRA/415/SEA NA 016/8/52 Operations Training etc. – Operation Grapple: Navy Secretary to NOCA 11 October 1956.
- <sup>65</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 4 International Affairs – Atomic Energy Military Uses Experiments 1/1/1957-31/3/1957 'News from Fiji' press release dated 13 March 1957.
- <sup>66</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 18.
- <sup>67</sup> Agency ABFK Series 7607 Accession W5056 Box 114. 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989. Letter from Secretary of Defence to Pensions Officer NZRSA dated 18 September 1986.
- <sup>68</sup> Appendix F to GRA/415/SEA NA 016/8/52 Operations Training etc. – Operation Grapple. See also Andrew McEwan, *Nuclear New Zealand: Sorting Fact from Fiction*, Christchurch: Hazard Press, 2004, 107.
- <sup>69</sup> HMNZS *Rotoiti* Classified report dated 17 June 1957
- <sup>70</sup> Gerry Wright, *We Were There: Operation Grapple*, New Plymouth, Zenith Publishing, n.d., p. 46. See also RNZN Museum Archive EXO 0006 HMNZS *Rotoiti* classified report dated 17 June 1957.
- <sup>71</sup> RNZN Museum Archive EXO 0006 HMNZS *Rotoiti* classified report dated 17 June 1957. See also Gerry Wright, *We Were There: Operation Grapple*, New Plymouth, Zenith Publishing, n.d., p. 47. See also RNZN Museum Archive EXO 0006 Loch Class Frigates A B C D Handbook issued 5 November 1957 – Navy office Wellington.
- <sup>72</sup> EXO 0006 Operation GRAPPLE – Nominal Lists of Officers Borne for HMNZS *Pukaki* dated 1 February 1957, 18 February 1958, 24 June 1958.
- <sup>73</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 21.
- <sup>74</sup> GRA/415/SEA NA 016/8/52 Operations Training etc. – Operation Grapple
- <sup>75</sup> Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, p. 53.
- <sup>76</sup> Film in RNZN Museum collection has sequences of helicopters operating with HMNZS *Pukaki*. These were Westland Whirlwind helicopters operating from HMS *Warrior*. See also Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, p. 53.
- <sup>77</sup> EXO 0006 Report of Proceedings HMS *Warrior* 19 May-3 June 1957, p. 1.
- <sup>78</sup> EXO 0006 Operation GRAPPLE- Report of Proceedings HMS *Warrior* 19 May-3 June 1957, p. 1.
- <sup>79</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 26.
- <sup>80</sup> 016/8/52 Operations Training etc. – Operation Grapple: Appendix 2 to Enclosure 'A' to 173/95 100/6 of 17 October 1957 Statement of Protective Gear and Radiac Instruments Being supplied from RN Sources
- <sup>81</sup> Keith Hubbard, Michael Simmons, *Dropping Britain's First H-Bomb: The Story of Operation Grapple 1957/1958*, Barnsley: Pen & Sword Aviation, 2008, pp. 53-55.
- <sup>82</sup> 016/8/52 Operations Training etc. – Operation Grapple: Appendix 2 to Enclosure 'A' to 173/95 100/6 of 17 October 1957 Statement of Protective Gear and Radiac Instruments Being supplied from RN Sources
- <sup>83</sup> EXO 0006 Operation GRAPPLE – HMNZS *Rotoiti* Quarterly Medical Report 1 July 1957, p. 2 and Report on Health of the Royal New Zealand Navy 12 July 1957 Medical Officer aboard HMNZS *Pukaki*.
- <sup>84</sup> Agency ABFK Series 7607 Accession W5548 Box 163 3320/4/2 Part 2 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Tests 1989-1995. Fax of Letter from W N Saxby Atomic Weapons Establishment to S Prior New Zealand High Commission London sent to Secretary of Defence Wellington dated 25 July 1988.
- <sup>85</sup> Agency ABFK Series 7607 Accession W5548 Box 163 3320/4/2 Part 2 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Tests 1989-1995. Fax of Letter from W N Saxby Atomic Weapons Establishment to S Prior New Zealand High Commission London sent to Secretary of Defence Wellington dated 25 July 1988.
- <sup>86</sup> Agency ABFK Series 7607 Accession W5056 Box 114. 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989 – Report to Commodore GRAPPLE Squadron HMS *Warrior* from CO HMNZS *Rotoiti* on ABCD Information dated 17 June 1957
- <sup>87</sup> 016/8/52 Operations Training etc. – Operation Grapple: Lieutenant-Commander W.J. Brown to CGS 17 June 1957 NA 06/1/33 and Paras 8 and 12 of Enclosure A to 173/95. 100/6 of 17 October 1957. Three men fainted due to the heat in the engine room.
- <sup>88</sup> Agency ABFK Series 7607 Accession W5056 Box 114. 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989 – Letter to NZDF Liaison Staff from Atomic Weapons Establishment 14 July 1988 quoting from HMS *Warrior's* ship's log.



- <sup>88</sup> PM 121/5/2 Confidential Report on the Observation of the British H-Bomb Test in the Pacific on 15 May 1957 by H.J. Yeabsley (a record of a verbal report given to the Prime Minister, Minister of External Affairs and Minister of Health on 21 May 1957) n.d.
- <sup>89</sup> EXO 0006 Operation GRAPPLE – Provisional Timetable for the Movement of HMNZS Ships Pukaki and Rotoiti During Operation GRAPPLE D12/1/1
- <sup>90</sup> Agency ABFK Series 7607 Accession W5056 Box 114. 3320/4/2 Part 1 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Nuclear Warfare (General): Tests (Incl Monitoring by NZ) 1988-1989 – Letter from Commodore Grapple Squadron to The Navy Secretary Navy Office Wellington 19 June 1957. See also EXO 0006 Operation GRAPPLE.
- <sup>91</sup> Denys Blakeway, Sue Lloyd-Roberts, *Fields of Thunder: Testing Britain's Bomb*, London: Unwin, 1985, pp. 158-159.
- <sup>92</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Personal Message from Macmillian to Holland dated 27 July 1957.
- <sup>93</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 40.
- <sup>94</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59  
Letter from Harold Macmillian to Sidney Holland 11 September 1957.
- <sup>95</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Letter Holyoake to Macmillian dated 4 October 1957.
- <sup>96</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Press statement dated 10 October 1957.
- <sup>97</sup> EXO 0006 Operation GRAPPLE: Loch Class Frigates A B C D Handbook issued 5 November 1957 – Navy Office Wellington
- <sup>98</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Note Dated 5 November 1957 – Future Megaton Tests Naval Assistance.
- <sup>99</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Letter from United Kingdom High Commissioner to PM Keith Holyoake dated 7 November 1957.
- <sup>100</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 6.
- <sup>101</sup> NA 0016/8/52 Secretary of External Affairs to Navy Secretary 19 December 1957. See also RNZN Report for 1958 p. 10.
- <sup>102</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Note for File dated 7 November 1957.
- <sup>103</sup> HMNZS *Pukaki* Report of Proceedings for April 1958.
- <sup>104</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Letter from United Kingdom High Commissioner Wellington to PM Keith Holyoake dated 28 November 1957.
- <sup>105</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 6. See also article *New Zealand Herald* 11 May 1973.
- <sup>106</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 49.
- <sup>107</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Letter to Walter Nash from High Commissioner United Kingdom dated 3 January 1958.
- <sup>108</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 Letter from Walter Nash to High Commissioner for the United Kingdom dated 13 January 1958. See also letter United Kingdom High Commissioner to Walter Nash dated 3 January 1958.
- <sup>109</sup> Derek Robinson, *Just Testing*, London: Collins Harvill, 1985, p.73. See also J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 49 and Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Memo to Navy Secretary from Secretary of external Affairs dated 13 January 1958.
- <sup>110</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 50.
- <sup>111</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 message from Macmillian to Nash dated 18 April 1958.
- <sup>112</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59. Letter from Ministry of External Affairs to High Commissioner for the United Kingdom dated 6 March 1958. See also Memorandum Department of External Affairs dated 28 February 1958.
- <sup>113</sup> HMNZS *Pukaki* Report of Proceedings for April & May 1958.
- <sup>114</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 Extract from Hansard 29 April 1958.
- <sup>115</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 Letter from UK High Commissioner Wellington to Prime Minister Walter Nash dated 14 July 1958.
- <sup>116</sup> NA 0016/5/52 British High Commissioner Mallaby to Nash 14 July 1958.
- <sup>117</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 letter from Deputy High Commissioner United Kingdom to Secretary of Island Territories dated 23 July 1958.
- <sup>118</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 56.

- <sup>119</sup> J.A.B. Crawford, *The Involvement of the Royal New Zealand Navy in the British Nuclear Testing Programmes of 1957 and 1958*, Wellington: Headquarters New Zealand Defence Force, 1989, p. 53.
- <sup>120</sup> EXO 0006 Operation GRAPPLE – First Lieutenant’s Temporary Memorandum No. 39 dated 1 September 1958.
- <sup>121</sup> HMNZS *Pukaki* Report of Proceedings for September & October 1958. See also Provisional Timetable for the Movement of HMNZS Ships *Pukaki* and *Rotoiti* During Operation GRAPPLE D12/1/1. See also Agency ABFK Series 7395 Accession W4010 Box 34 NA 62/6/1 part 1 Operations General: Operation GRAPPLE 1959-1961 - Message from Admiralty to New Zealand Naval Board dated 18 May 1960. The GRAPPLE Squadron was disbanded in 1960.
- <sup>122</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 letter from UK High Commissioner to NZ Department of External Affairs dated 13 November 1958.
- <sup>123</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 7. Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 Extract from French Defence Policy dated 31 December 1959.
- <sup>124</sup> Agency ABHS Series 950 Accession W4627 Box/File 121/5/2 Part 7 International Affairs – Atomic Energy Military Uses Experiments 31/3/58 – 31/12/59 Cable from Australian Paris Embassy to Department of External Affairs 13 January 1960.
- <sup>125</sup> Wade Huntley, *Working Paper No. 126 Security or Spectacle?: Foreign Policy realism and Nuclear-Free New Zealand*, Canberra: Peace Research Centre, 1993, p. 11. This view of course comes from the Labour side of our politics.
- <sup>126</sup> *French Nuclear Testing in the Pacific: International Court of Justice Nuclear Tests Case New Zealand v. France*, Wellington: Ministry of Foreign Affairs, July 1973, p. 9. Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 11.
- <sup>127</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 45.
- <sup>128</sup> *French Nuclear Testing in the Pacific: International Court of Justice Nuclear Tests Case New Zealand v. France*, Wellington: Ministry of Foreign Affairs, July 1973, pp. 9-10. See also *The Times* 23 July 1973, p. 1.
- <sup>129</sup> *French Nuclear Testing in the Pacific: International Court of Justice Nuclear Tests Case New Zealand v. France*, Wellington: Ministry of Foreign Affairs, July 1973, p. 11.
- <sup>130</sup> Michael Field, ‘Silent Witness to Nuke Fallout’, *Dominion Post* 28 March 2006, p. A6.
- <sup>131</sup> Michael Field, ‘Silent Witness to Nuke Fallout’, *Dominion Post* 28 March 2006, p. A6.
- <sup>132</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 13.
- <sup>133</sup> *French Nuclear Testing in the Pacific: International Court of Justice Nuclear Tests Case New Zealand v. France*, Wellington: Ministry of Foreign Affairs, July 1973, p. 11.
- <sup>134</sup> Michael Field, ‘Silent Witness to Nuke Fallout’, *Dominion Post* 28 March 2006, p. A6.
- <sup>135</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 17.
- <sup>136</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, 46.
- <sup>137</sup> Nigel Roberts, *New Zealand and Nuclear Testing in the Pacific*, Wellington: New Zealand Institute of International Affairs, 1972, p. 20.
- <sup>138</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p.47.
- <sup>139</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 48.
- <sup>140</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 49.
- <sup>141</sup> *The Times* 23 July 1973, p. 1.
- <sup>142</sup> EXN 0010 Mururoa Nuclear Tests 1973 – *The Auckland Star* 24 January 1973.
- <sup>143</sup> *French Nuclear Testing in the Pacific: International Court of Justice Nuclear Tests Case New Zealand v. France*, Wellington: Ministry of Foreign Affairs, July 1973, p.10.
- <sup>144</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 42.
- <sup>145</sup> *The Times* 17 May 1973, p. 8.
- <sup>146</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 51.
- <sup>147</sup> Peter Kitchin, ‘Flying the Anti-nuclear testing flag in the Pacific’, *Dominion Post* 17 May 2008, p. E10.
- <sup>148</sup> Peter Kitchin, ‘Flying the Anti-nuclear testing flag in the Pacific’, *Dominion Post* 17 May 2008, p. E10.
- <sup>149</sup> Peter Kitchin, ‘Flying the Anti-nuclear testing flag in the Pacific’, *Dominion Post* 17 May 2008, p. E10.
- <sup>150</sup> FZM 0002 Documents relating to Mururoa 1973 – HMAS *Supply* Report of Proceedings for June 1973, p. 1.
- <sup>151</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 51.
- <sup>152</sup> Peter Dennis, *The Oxford Companion to Australian Military History*, Melbourne: Oxford University Press, 1995, p. 576.
- <sup>153</sup> *The Royal Australian Navy News* 16:14 20 July 1972, p. 1.
- <sup>154</sup> EXO 0006 Operation GRAPPLE – David Barber, ‘Blast Heard Round the World’ *Sunday Star Times* 19 July 1998, p. 11.
- <sup>155</sup> *The Royal Australian Navy News* 16:14 20 July 1972, p. 2.
- <sup>156</sup> FZM 0002 Documents relating to Mururoa 1973 – HMAS *Supply* Report of Proceedings for June 1973, p. 2.
- <sup>157</sup> FZM 0002 Documents relating to Mururoa 1973 – HMAS *Supply* Report of Proceedings for June 1973, p. 3.
- <sup>158</sup> David Stevens, (ed.), *The Royal Australian Navy: The Australia Centenary History of Defence Volume III*, Melbourne: Oxford University Press, 2001, p. 193-194.
- <sup>159</sup> EXN 0010 Mururoa Nuclear Tests 1973 – article from *The Press* dated 6 July 1973. Specifically mentions RAAF flying from bases in NSW.

- <sup>160</sup> David Stevens (ed.), *The Royal Australian Navy: The Australian Centenary History of Defence Volume III*, Melbourne: Oxford University Press, 2001, p. 231.
- <sup>161</sup> EXN 0010 Mururoa Nuclear Tests 1973 – *New Zealand Herald* 8 June 1973.
- <sup>162</sup> EXN 0010 Mururoa Nuclear Tests 1973 – *New Zealand Herald* 8 June 1973.
- <sup>163</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 52.
- <sup>164</sup> Gerry Wright, '30 Years Ago: The Navy at Mururoa', *The Raggy* 17:3 (2003), p.6.
- <sup>165</sup> *The Times* 21 June 1973, p. 9.
- <sup>166</sup> *The Times* 21 June 1973, p. 9.
- <sup>167</sup> EXN 0010 Mururoa Nuclear Tests 1973 – ROP for HMNZS *Canterbury* June 1973.
- <sup>168</sup> Self-refit: Prior to WW2 whenever a ship was in for any type of work by the dockyard it was known as a refit. In theory, the vessel under self-refit should be able to make steam within 48 hours.
- <sup>169</sup> *The Times* 29 June 1973, p. 9.
- <sup>170</sup> Michael Field, 'Silent Witness to Nuke Fallout', *Dominion Post* 28 March 2006, p. A6.
- <sup>171</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 54.
- <sup>172</sup> *The Times* 29 June 1973, p. 9.
- <sup>173</sup> *The Times* 29 June 1973, p. 9.
- <sup>174</sup> FZM 0002 Documents relating to Mururoa 1973 - Directive for RNZN Ships issued 25 June 1973
- <sup>175</sup> FZM 0002 Documents relating to Mururoa 1973 – Operation Order
- <sup>176</sup> FZM 0002 Documents relating to Mururoa 1973 – Operation Order
- <sup>177</sup> *The Royal Australian Navy News* 16:14 20 July 1972, p. 2.
- <sup>178</sup> FZM 0002 Documents relating to Mururoa 1973 – HMAS *Supply* Report of Proceedings for June 1973, p. 4.
- <sup>179</sup> *The Royal Australian Navy News* 16:14 20 July 1972, p. 2. See also EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Mururoa Operation Report No. 1 sated 3 July 1973, pp 1-2. Note as the ships crossed the international date line Friday 29 June was repeated aboard ship.
- <sup>180</sup> *The Royal Australian Navy News* 16:14 20 July 1972, p. 2. See also EXN 0010 Mururoa Nuclear Tests 1973 – summary document prepared by RNZN.
- <sup>181</sup> FZM 0002 Documents relating to Mururoa 1973- Directive for RNZN Ships issued 25 June 1973
- <sup>182</sup> FZM 0002 Documents relating to Mururoa 1973 – HMAS *Supply* Report of Proceedings for June 1973, p. 4.
- <sup>183</sup> Gerry Wright, '30 Years Ago: The Navy at Mururoa', *The Raggy* 17:3 (2003), p. 6.
- <sup>184</sup> FZM 0002 Documents relating to Mururoa 1973 – HMAS *Supply* Report of Proceedings for June 1973, p. 4.
- <sup>185</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 54. See also EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Mururoa Operation Report No. 1 sated 3 July 1973, p 2.
- <sup>186</sup> FZM 0002 Documents relating to Mururoa 1973 – Directive for RNZN Ships dated 25 June 1973, p. 3.
- <sup>187</sup> EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Mururoa Operation Report No. 1 dated 3 July 1973, p 4.
- <sup>188</sup> EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Mururoa Operation Report No. 2 dated 10 July 1973, p 1.
- <sup>189</sup> *The Royal Australian Navy News* 16:14 20 July 1972, p. 2. See also HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973.
- <sup>190</sup> *Royal Australian Navy News* 16:15 3 August 1973, p. 7.
- <sup>191</sup> EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Mururoa Operation Report No. 2 dated 10 July 1973, p 2.
- <sup>192</sup> EXN 0010 Mururoa Nuclear Tests 1973 – article from *The Press* dated 6 July 1973.
- <sup>193</sup> FZM 0002 Documents relating to Mururoa 1973 – Directive for RNZN Ships issued 25 June 1973.
- <sup>194</sup> EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Mururoa Operation Report No. 2 dated 10 July 1973, p 4.
- <sup>195</sup> EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Operation Report No. 3 dated 12 July 1973.
- <sup>196</sup> EXN 0010 Mururoa Nuclear Tests 1973 – HMNZS *Otago* Mururoa Operation Report No. 2 dated 10 July 1973, p 6.
- <sup>197</sup> *Royal Australian Navy News* 16:15 3 August 1973, p. 7. See also HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973 and Operation Report No. 3 dated 12 July 1973.
- <sup>198</sup> EXN 0010 Mururoa Nuclear Tests 1973 – article from *The Press* dated 6 July 1973.
- <sup>199</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973. *Otago* tracked the released balloons to a height of 18,300 (60,000 ft)
- <sup>200</sup> *The Royal Australian Navy News* 16:14 20 July 1972, p. 2. See also HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973. By 19 July a permanent radphone link had been established between *Otago* and Wellington and with NZPA & NZBC.
- <sup>201</sup> Michael Field, 'Silent Witness to Nuke Fallout', *Dominion Post* 28 March 2006, p. A6.
- <sup>202</sup> Michael Field, 'Silent Witness to Nuke Fallout', *Dominion Post* 28 March 2006, p. A6.
- <sup>203</sup> Michael Field, 'Silent Witness to Nuke Fallout', *Dominion Post* 28 March 2006, p. A6.
- <sup>204</sup> Gerry Wright, '30 Years Ago: The Navy at Mururoa', *The Raggy* 17:3 (2003), p. 152.
- <sup>205</sup> Peter Kitchin, 'Flying the Anti-nuclear testing flag in the Pacific', *Dominion Post* 17 May 2008, p. E10.
- <sup>206</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, p. 8. *Otago* shut down to NCBD State 1 Condition Zulu and all hands at action stations.
- <sup>207</sup> EXN 0010 Mururoa Nuclear Tests 1973 – Report of Proceedings for HMNZS *Canterbury* July 1973
- <sup>208</sup> EXN 0010 Mururoa Nuclear Tests 1973 - Report of Proceedings for HMNZS *Canterbury* July 1973
- <sup>209</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, p. 9. See also Report of Proceedings for HMNZS *Canterbury* July 1973
- <sup>210</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, p. 9.
- <sup>211</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, pp. 10, 15.

- <sup>212</sup> FZM 0002 Documents relating to Mururoa 1973 – HMNZS *Canterbury* summary of events dated 14 August 1973, p. 2.
- <sup>213</sup> *Royal Australian Navy News* 16:16 17 August 1973, p. 7. See also HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, p. 11 and Report of Proceedings for HMNZS *Canterbury* July 1973.
- <sup>214</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, p. 12. She arrived 2 August 1973.
- <sup>215</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, second page of summary attached to report.
- <sup>216</sup> HMNZS *Otago* – Mururoa Operation Report No. 4 Dated 2 August 1973 in EXN 0010 Mururoa Nuclear Tests 1973, p. 12.
- <sup>217</sup> This was the 32<sup>nd</sup> test since 1966.
- <sup>218</sup> Gerry Wright, '30 Years Ago: The Navy at Mururoa', *The Raggy* 17:3 (2003), p. 7.
- <sup>219</sup> EXN 0010 Mururoa Nuclear Tests 1973 – Report of Proceedings for HMNZS *Canterbury* July 1973
- <sup>220</sup> EXN 0010 Mururoa Nuclear Tests 1973 - Report of Proceedings for HMNZS *Canterbury* July 1973. See also summary of events for HMNZS *Canterbury* dated 14 August 1973.
- <sup>221</sup> EXN 0010 Mururoa Nuclear Tests 1973 - Report of Proceedings for HMNZS *Canterbury* August 1973. She arrived on 13 August 1973. See also summary of events for HMNZS *Canterbury* dated 14 August 1973.
- <sup>222</sup> *The Times* 6 August 1973 p.5
- <sup>223</sup> EXN 0010 Mururoa Nuclear Tests 1973 – article from *New Zealand Herald* 3 August 1973.
- <sup>224</sup> *The Times* 6 August 1973 p.5
- <sup>225</sup> EXN 0010 Mururoa Nuclear Tests 1973 – Summary produced by the RNZN p. 9.
- <sup>226</sup> EXM 0027 Ministry of Defence Annual Report 1974, p. 11.
- <sup>227</sup> EXN 0010 Mururoa Nuclear Tests 1973 – article from *New Zealand Herald* 23 July 1973.
- <sup>228</sup> EXM 0027 Ministry of Defence Annual Report 1974 – Annex A dated 7 March 1974.
- <sup>229</sup> EXM 0027 Ministry of Defence Annual Report 1974 – Annex A dated 7 March 1974.
- <sup>230</sup> Stewart Firth, *Nuclear Playground*, Sydney: Allen & Unwin, 1987, p. 11. English translation strike force – France's nuclear counter.
- <sup>231</sup> Kim Richard Nossal, Carolynn Vivian, *A Brief Madness: Australia and the Resumption of French Nuclear Testing*, Canberra Papers on Strategy and Defence No. 121, Canberra: Strategic and Defence Studies Centre research School of Pacific and Asian Studies Australian National University, 1997, p. 6.
- <sup>232</sup> *ibid.*, p. 12.
- <sup>233</sup> Agency ABFK Series 7607 Accession W5548 Box 163 3320/4/2 Part 2 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Tests 1989-1995. Cabinet Strategy Committee meeting minutes CSC (95) M 14/2 dated 2 May 1995.
- <sup>234</sup> Agency ABFK Series 7607 Accession W5548 Box 163 3320/4/2 Part 2 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Tests 1989-1995. Memorandum from Minister of Foreign Affairs and Trade to Cabinet Strategy Committee undated.
- <sup>235</sup> Agency ABFK Series 7607 Accession W5548 Box 163 3320/4/2 Part 2 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Tests 1989-1995. Memorandum from Minister of Foreign Affairs and Trade to Cabinet Strategy Committee undated.
- <sup>236</sup> Agency ABFK Series 7607 Accession W5548 Box 163 3320/4/2 Part 2 Plans, Operations and Readiness – Nuclear, Biological, Chemical Warfare and Damage Control – Tests 1989-1995. Memorandum from Minister of Foreign Affairs and Trade to Cabinet Strategy Committee undated.
- <sup>237</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 105.
- <sup>238</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 107.
- <sup>239</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 111.
- <sup>240</sup> *ibid.*, p. 23.
- <sup>241</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 110.
- <sup>242</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 110.
- <sup>243</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 110.
- <sup>244</sup> Kim Richard Nossal, Carolynn Vivian, *A Brief Madness: Australia and the Resumption of French Nuclear Testing*, Canberra Papers on Strategy and Defence No. 121, Canberra: Strategic and Defence Studies Centre research School of Pacific and Asian Studies Australian National University, 1997, pp. 7-8.
- <sup>245</sup> Kim Richard Nossal, Carolynn Vivian, *A Brief Madness: Australia and the Resumption of French Nuclear Testing*, Canberra Papers on Strategy and Defence No. 121, Canberra: Strategic and Defence Studies Centre research School of Pacific and Asian Studies Australian National University, 1997, p. 8.
- <sup>246</sup> Kim Richard Nossal, Carolynn Vivian, *A Brief Madness: Australia and the Resumption of French Nuclear Testing*, Canberra Papers on Strategy and Defence No. 121, Canberra: Strategic and Defence Studies Centre research School of Pacific and Asian Studies Australian National University, 1997, pp. 22-23.
- <sup>247</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 110.
- <sup>248</sup> Sarah Boyd, 'Parties unite to condemn French tests', *The Evening Post* 18 July 1995, p. 1.
- <sup>249</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, pp. 112-113.
- <sup>250</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 113.

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<sup>251</sup> Stephen Hoadley, *New Zealand and France: Politics, Diplomacy and Dispute Management*, Wellington: New Zealand Institute of International Affairs, 2005, p. 105.

<sup>252</sup> Minute .

<sup>253</sup> HMNZS *Tui* Report of Proceedings August 1995, p. 3.

<sup>254</sup> EXO 0013 RNZN Minute NA 3440-0015 14 December 1995

<sup>255</sup> EXO 0013 RNZN Minute NA 3440-0015 14 December 1995

<sup>256</sup> EXO 0013 RNZN Minute NA 3440-0015 14 December 1995