

# SPREP

South Pacific Regional  
Environment Programme



# PROE

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## **Cook Islands POPs Project Country Plan** **(Prepared by SPREP, January 2003)**

### **1. Introduction**

The Australian Agency for International Development (AusAID) several years ago identified the mismanagement of hazardous chemicals in the Pacific Island Countries as a serious environmental concern, and hence the Persistent Organic Pollutants in Pacific Island Countries (POPs in PICs) project was developed as an AusAID funded initiative, to be carried out by SPREP. POPs are a group of twelve particularly hazardous chemicals that have been singled out by the recent Stockholm Convention for urgent action to eliminate them from the world. They include polychlorinated biphenyls (PCBs), which are mainly found in transformers, and several pesticides that are very persistent and toxic to the environment.

Phase I of the project involved predominantly an assessment of stockpiles of waste and obsolete chemicals and identification of contaminated sites, for 13 Pacific Island Countries. Other Phase I activities included education and awareness programmes in each country and a review of relevant legislation.

The Cook Islands was a participant in Phase I of this work. A comprehensive report of this Phase I work was prepared and circulated, and significant quantities of hazardous wastes were identified in the countries visited, including estimated figures of 130 tonnes of PCB liquids and 60 tonnes of pesticides (although only about 3 tonnes of POPs pesticides). Many other hazardous wastes were also identified as well. In addition, quite a large number of contaminated sites were discovered, including six locations of buried pesticides. On the basis of this report, it was decided to proceed to the Phase II of the project, which involved the preparation of a more detailed inventory, and then collecting, transporting and disposing of the wastes, to a suitable Australian facility.

The first part (Component 1) of the Phase II work is now nearly complete, and has involved visits to each of the countries involved in the project, including the Cook

Islands, for detailed inventories to be carried out, including testing of all stockpiled transformers. Other work was also carried out during these visits, including improving the temporary storage arrangements where necessary, and obtaining written agreement from each country for the project to proceed. A copy of the Cook Islands visit report is contained in Appendix 1 below.

The most significant conclusion found from this next stage of the work is that the estimated amount of PCB contaminated oils was far too high. Instead of the expected 130 tonnes, only 12.5 tonnes were found. This presented an opportunity to include additional wastes in the project, and it was decided to collect and dispose of all the pesticides, rather than only the POPs pesticides (as well as all the PCB transformer oils that were confirmed positive). A total of 50,265 kg of pesticides will now be dealt with, including 1825 kg of POPs pesticides and 6542 kg of unknowns, some of which may be POPs pesticides.

A full inventory of all pesticides and PCB contaminated oils was prepared in November 2002 as the basis for bid invitations to appoint an Australian Management Contractor (AMC) to carry out the rest of the Phase II work. As a result, the Australian company GHD Pty Ltd was appointed as AMC. GHD is expected to start work shortly and it is important that all countries agree to a confirmed plan for implementing the rest of the Phase II work. The wastes will all go to the BCDT / SRL Plasma plant in Narangba, north of Brisbane.

AusAID have engaged the Australian legal firm of Blake Dawson Waldron ("**BDW**") and instructed them to provide advice in relation to aspects of the POPs Project. As part of this process BDW has asked SPREP to obtain from participating countries some information as presented in Section 4 below.

## **2. Country Inventory**

(It is possible that more wastes may be found in the categories below, prior to the time of pickup. If so, these could be added to the inventory, subject to negotiation with AusAID and the AMC.)

The Cook Islands has no **PCB Contaminated Oils** in stockpiled transformers. All stockpiled transformers were tested with Dexsil Chlor-N-Oil 50 test kits and seven tested positive out of 33 transformers (stockpiled on Rarotonga, Aitutaki, Atiu and Mangaia). The Dexsil kits test for all chlorine and not just chlorine in PCBs, so they are susceptible to "false positive" results. All seven transformers were later confirmed as negative by Hills Laboratories in New Zealand.

The Cook Islands has the following **Pesticides** to be collected. At Aitutaki, the pesticides (except for the lead arsenate) are all packed in a container. The contents of the container were not inspected during the Phase 2, Component 1 work, as the container was packed

securely and was difficult to unpack. The Aitutaki pesticides (again except for the lead arsenate) are therefore shown below as per the Phase 1 report information.

Location	Pesticide	Active Agent	Quantity Kg	Comments
<b>Totokoitu,</b>	Dieldrite	dieldrin HEOD	100	Liquid, good packaging
<b>Rarotonga</b>				
	Foresite	Oxadiazon	2	Liquid, good packaging
	Sinbar	Tarbacil	1	Good packaging
	Di-Trapex-New		2	Liquid, good packaging
	Counter 10-4 (very toxic)	Terbufos	4	Good packaging
	Benlate	Benomyl	7	Poor packaging
	Nemacur	Fenamiphos	1	Liquid, good packaging
	Aliette	fosetyl-aluminium	4	Poor packaging
	Basudin	Diazinon	2	Good packaging
	Delsene		20	Liquid, good packaging
	Frontier	Dimethanamid	2	Liquid, good packaging
	2,4-D Amine	2,4-D	5	Liquid, good packaging
	Stomp	Pendimathalin	1	Liquid, good packaging
	Vydate	Oxyamyl	947	Liquid, good packaging
	Monitor	Methamidophos	2	Liquid, good packaging
	Brassicol 75	Quintozine	1	Poor packaging
	Planavin 75	4-methylsulphonyl	1	Good packaging
	Dacthal	Dimethyl	5	Good packaging
	Calirus	Benodanil	1	Good packaging
	Copac E		0.2	Liquid, good packaging
	Actazine	Frazine	4	Liquid, good packaging
	Enide 50W	Diphenamid	11	Good packaging
	Rovral	Iprodione	1	Good packaging
	Bayleton	Triadimepon	0.5	Good packaging
	Rubigan	Fenarimol	0.2	Liquid, good packaging
	Kerb	Propyzamide	0.5	Good packaging
	Kepone		1	Good packaging
	Septan	Carbaryl	0.5	
	Allicep	Chlorbufam	2	Poor packaging
	Actazine		6	Good packaging
	Devrinol	Napropamide	3	Good packaging
	Ramrod	Propchlor	0.5	Liquid, good packaging
	Totril	Ioxynil	5	Liquid, good packaging
	Gesatop	Simazine	3	Good packaging

	Temik	2-methyl-2-methithio-propional	1	Good packaging
	TOK-E-2		1	Good packaging
	Ambush	Permethrin	0.3	Good packaging
	Tokuthion	Prothiophos	0.3	Poor packaging
	Aluminium phosphide	aluminium phosphide	249	Liquid, poor packaging
	Detia GAS-EX-B	aluminium phosphide	1.5	Poor packaging
	Lindane	Lindane	11	Good packaging
	Phostoxin	Aluminium phosphide	44	Good packaging
	Miral	10% isozofos	0.5	Good packaging
	Multicrop	Chlorflurenol	3	Liquid, good packaging
	Krenite	Fosamine	4	Liquid, good packaging
	Tribunil	Methabenzthiazuron	2	Good packaging
	Simazine	Simazine	5	Liquid, good packaging
	Lorsban	Chlorpyrifos	2	Liquid, good packaging
N.B. All above are kept at the Agricultural Research Station at Totokoito, Rarotonga, in good secure storage.				
<b>Aitutaki</b>	Carbofuran	Carbofuran	750	Packed in a container
	Larvicide		100	Packed in a container
	Lead Arsenate	lead arsenate	20	In a wooden box
	Nemacur	Fenamiphos	650	Packed in a container
N.B. All the above are kept locked in a container adjacent to the Aitutaki Agriculture Store, except for the lead arsenate, which is on the floor of the Store.				
<b>Mangaia</b>	Malathion	Malathion	80	Poor packaging
	Karmex	Diuron	150	Poor packaging
	Mancozeb 80	Dithane	40	Poor packaging
	Diazinon 20P	Diazinon	10	Poor packaging
	Diazinon 50P	Diazinon	100	Poor packaging
	Unknown		250	Poor packaging
N.B. All the above are kept locked in an old stone building, but are lying on the Floor in an untidy fashion.				

<b>Atiu</b>	Hyvar	Bromacil	105	Good packaging
	Karmex	Diuron	90	Good packaging
	Ridomil 25WP	Ridomil	36	Good packaging
	Karathane	Dinocap	91	Good packaging
N.B. All the above are kept locked in the Agriculture Store.				

### **3. Other Project Work**

Two samples of fertiliser were analysed from the Aitutaki Agriculture Storage Shed, at the request of Fred Charlie, Senior Agricultural Officer, Aitutaki. The results were as follows:

White Fertiliser:       Probably sodium borate  
 Cream Fertiliser:       Zinc sulphate

One sample was analysed from two drums of an unknown liquid marked “agricultural” from the Ministry of Agriculture store on the main road in Oneroa, Mangaia. Based on a qualitative GC scan, this liquid is a hydrocarbon oil containing hydrocarbons mainly in the range C15 to C25. It need not therefore be removed as part of the POPs project.

Three asbestos samples were analysed with the following results:

Rarotonga Power Station:       Amosite (Brown) and Chrysotile (White) asbestos detected.

Mangaia Secondary School:       Chrysotile (White), Amosite (Brown) and Crocidolite (Blue) asbestos detected

Old Raro Juice Canning Plant:       Chrysotile (White), Amosite (Brown) asbestos detected

On the basis of these results and the fact of the many asbestos buildings in the Cook Islands it was decided to set in place a suitable asbestos management system for the Cook Islands. To initiate this process, an asbestos management training workshop was held from 21 to 23 January.

Stockpiles of other hazardous wastes besides POPs and pesticides were also investigated. The Ministry of Works in Rarotonga has quite large stockpiles of miscellaneous chemicals, and some schools were also holding stockpiles of surplus chemicals.

#### **4. Domestic Laws on Collection, Packaging, Transportation and Export of Hazardous Waste**

AusAID have engaged the Australian legal firm of Blake Dawson Waldron ("**BDW**") and instructed them to provide advice in relation to aspects of the POPs Project. As part of this process BDW has asked SPREP to obtain from the Cook Islands (as well as all other participating countries) the following information:

- a) What are the legal responsibilities in the Cook Islands for persons involved in collection, packaging, transportation and disposal of hazardous wastes and who are those responsibilities allocated to by the laws in the Cook Islands.
- b) Who is the owner of the hazardous wastes in the Cook Islands.
- c) Does the Cook Islands have domestic legislation which allocates responsibility for POPs waste during collection, packaging and export? If so, how is this responsibility allocated? Please consider that liability and responsibility may arise from:
  - requirements to comply with clean-up notices or Government directions relating to the waste;
  - requirements to meet safety, environmental and other standards in relation to the waste; and
  - requirements to compensate others for damage to property, human health or the environment.
- d) Does the Cook Islands have a domestic policy in relation to providing or withholding consent under the prior informed consent provisions of the Waigani Convention (Article 6) for:
  - The Cook Islands
  - any other Pacific Island Countries planning to 'transit' wastes through the Cook Islands.
- e) Has the Cook Islands developed a national hazardous waste management strategy in accordance with Article 4(4)(e) of the Waigani Convention? If so, how is the strategy relevant to:
  - the collection, packaging, transportation and exportation of POP waste; and
  - responsibility for and ownership of the POP waste at each of the steps in (i).

Should you have any enquiries, please contact the following relevant Blake Dawson Waldron staff, Tony Hill on (02) 9258 6185 or Joanna Perrens on (02) 9258 6401 in Sydney, Australia.

## **5. Discussion**

The pesticides at the Department of Agriculture Research Station at Totokoito, Rarotonga are kept in a secure and tidy store and the hazardous pesticides are locked away. There is a total of 1471 kg of pesticides stored at this location, which will require approximately 15 x 200 litre drums, allowing for containers and packaging

The pesticides at the Aitutaki Agriculture Store are all stored securely in a shipping container except for the lead arsenate, which is in a wooden box near the fertilizers. There is some doubt whether the 20 kg of lead arsenate can be accepted as part of this project. As stated above, the contents of the container were not examined as part of the Phase II Component 1 work, as they were securely packed in wooden crates. The inventory items and quantities presented above have therefore been taken from the Phase I work. Based on this information, the total amount of pesticides at Aitutaki is 1520 kg, which will require approximately 16 x 200 litre drums, allowing for containers and packaging.

The pesticides at Mangaia are stored in the old prison at Oneroa. They are in quite a bad condition and are lying on the floor in one corner. Most of the packaging is leaking and some of the pesticides have been mixed up. The total amount is about 630 kg, of which 250 kg is unknown because of lack of proper labels. This will require approximately 5 drums, allowing for containers and packaging.

The pesticides at Atiu are kept locked in the Agriculture Store and are in good condition. Some of them may still be used, although they have been stored there for several years. If none of them are reused, the total amount to be disposed will be about 322 kg. This will require approximately 4 drums, allowing for containers and packaging.

The total number of drums needed is therefore approximately 40 drums. A total of 80 drums will fit inside a 20 ft container, so only one 20 ft container will be required.

A staging location will be needed for the container, and possibly a good location would be at the Department of Agriculture Research Station at Totokoito, Rarotonga. There is plenty of room there and many of the pesticides to be packaged up are located there.

The local transport of the drums to the container staging area needs to be on safe covered trucks with good containment. Once the container is securely packed and all the paperwork is completed, the container will be transported to the Port for shipment.

It is also important that consent procedures are in place to process the application from GHD to the Cook Islands to export the waste. The Cook Islands has ratified the Waigani Convention, and needs to be ready to handle effectively, the export application, including any appropriate public consultation processes. SPREP plans to hold a workshop soon to assist countries with this consent process.

The impact on the public in the Cook Islands should be minimal, provided everything is organized and implemented according to a well-designed management plan. The local transport routes and movement times will be part of the plan, and the only risk of public exposure will be if some incident occurs during this local transport, which leads to a spill. The basis of the management plan should be communicated to the public effectively via TV, radio, and printed media, but not in an alarmist fashion, as the risk to the public is very low.

## **6. Conclusions**

1. The Cook Islands has no PCB contaminated transformers.
2. The following quantities of pesticides are to be picked up from various locations in the Cook Islands:
  - a. Totokoito, Rarotonga            1471 kg
  - b. Aitutaki                                1520 kg
  - c. Mangaia                                630 kg
  - d. Atiu                                        322 kg
3. A total of about 40 drums will be required, which will fit into one 20 ft shipping container.
4. The two fertilizers analysed from the Aitutaki Agriculture Shed were:
  - i. White Fertiliser:            Probably sodium borate
  - ii. Cream Fertiliser:            Zinc sulphate
5. Three asbestos samples were analysed and found to contain brown, white, and in one case, blue asbestos. Numerous building, especially those under Government control such as schools, were found to be clad in asbestos.
6. Stockpiles of used chemicals were found in several locations, especially those being held by the Ministry of Works in Rarotonga.

## **7. Actions**

1. The pesticides for collection need to be isolated and secured. It needs to be confirmed with the owners / managers that these pesticides are definitely to be removed as part of the project. (For example there is a possibility that some of the pesticides at Atiu may still be used.)



2. A local management plan will need to be prepared for all local operations, including the determination of the location of the container while the collection operations are going on. This plan will need to address such issues as local transportation arrangements, local contact focal point, and the best way of carrying out consultation with the Cook Islands public on the local implementation of the project. This plan needs to be developed in conjunction with the AMC.
3. Local systems need to be put in place to ensure effective processing of the application from the AMC to export hazardous waste from the Cook Islands to Australia. This application will be lodged under the Waigani Convention. A SPREP workshop is planned for April this year to assist countries with these procedures, and a Cook Islands representative should attend this workshop. (Financial assistance will be provided.)
4. Advise the Power Authority and Agriculture Dept offices in Rarotonga, Aitutaki, Mangaia and Atiu of the results of the inventories and analyses, including the unknown drums on Mangaia and the fertiliser analyses for Aitutaki.
5. Continue initiatives to set in place an asbestos management system in the Cook Islands.
6. Continue to safely stockpile used chemicals that are not to be picked up by the current AusAID project. It would be appropriate to find a suitable central locked storage area with proper shelving for these chemicals, and also to ensure that proper segregation of incompatibles (e.g. acids and alkalis, oxidizers and reducers, acids and cyanides) is achieved.
7. Provide SPREP with appropriate responses to the BDW questions regarding Domestic Laws on Collection, Packaging, Transportation and Export of Hazardous Waste

## APPENDIX 1

### REPORT OF THE VISIT OF JOHN O'GRADY (SPREP) TO THE COOK ISLANDS FOR THE POPS PROJECT

#### **Wednesday 24 April**

Met *I'o Tuakeu-Lindsay, Environment Service International Manager*, and briefed her on my visit and the POPs in PICs project. Then we had a meeting with I'o, *Vaitoti Tupa (Director of the Environment Service)* and *Terekino (Tino) Vaireka of Te Aponga Uira (The Electricity Corporation)*. We discussed the project and worked out a program. I'o asked me to stay the extra week so I could spend some time with her in the week starting 5 May, and also visit some of the outer islands. I'o explained that she would be busy all the coming week with the Cook Islands National Preparations workshop for the WSSD.

I was then invited to attend the preliminary meeting for the WSSD workshop.

In the afternoon, *Tauraki Raea* from the Environment Service drove me around the island and showed me the whereabouts of all the places I needed to visit. We also had a look at the Rarotonga Recycling Centre.

#### **Thursday 25 April**

Today was Anzac Day, and a holiday in the Cook Islands. I spent the afternoon in the Environment Service Office, writing emails and preparing cabinet papers for the Cook Islands signing of the Stockholm Convention and also for the signing of the Letter of Agreement for the POPs in PICs project.

#### **Friday 26 April**

Spent all day with Tino Vaireka of Te Aponga Uira. We tested seven transformers stored at their Depot and found one positive. This was a very large old British transformer, which originally contained 1.4 tons of oil. Unfortunately most of this oil had disappeared, and there was about an estimated 100 kg remaining. We then went up to the Power Station and discovered a further eight old stockpiled transformers, despite having been told that there was only one up there. We later discovered that these were remaining from when the island converted from the old 3.3 kV system to the current 11 kV system. We agreed to test these transformers the following week. I then met the Te Aponga senior staff and explained the project and the risks of exposure to PCBs.

Also met *Roger Mason, an Australian consultant* who was working with Te Aponga Uira. Roger advised that a few months ago, Alstom in New Zealand tested samples of several "in-service" Rarotonga transformers. The tests were primarily to assess the electrical qualities of the oil in the transformers, but checks for PCBs were also carried out. He promised to find the results for us.

Also spoke to **Philip Seti, Manager of BP Oil for the Cook Islands**. He explained that BP's business in the Cook Islands was mainly confined to supplying the Rarotonga Power Station, and their contract was currently up for renewal. As part of their agreement, they were obliged to receive and deal properly with all the power station's waste oil. BP was doing this effectively, according to Philip, and all the waste oil was being sent to Fiji for use as fuel in the Steel Plant.

### **Monday 29 April**

Went with Tino Vaireka to visit the island of Aitutaki for the day.

Upon arrival, we went directly to the Aitutaki Power Station. It was explained to me that the Ministry of the Outer Islands controlled the electricity generation on all the outer islands. We met the **Aitutaki Power Station Manager Long Tuiravakai** and explained the purpose of our visit. We then tested nine transformers, which were either stored for further use or which became surplus after Aitutaki partially switched from a 3.3 kV system to an 11 kV system. Three of the transformers tested positive, and one could not be tested as it contained a thick black sludge – the result of filling the transformer with the wrong oil. (We took a sample of the sludge for testing.) Long advised that there would be about eight more transformers coming out of service in six months time when all the 3.3 kV gear is phased out and replaced by 11kV gear. We should send testing kits and money to test these transformers when they come out of service.

We then met **Fred Charlie, Senior Agricultural Officer, Aitutaki (Ph 31614)**, and inspected the storage area of the adjacent Ministry of Agriculture, which was adjacent to the Power Station. A large quantity of pesticides and fertilizers had been stored in a container. It was impossible without a forklift to inspect these pesticides and fertilisers, as they were stored in large boxes stacked two boxes high, up to the roof of the container. We were also shown about 3 tonnes (in 50kg bags) of various inorganic fertilizers (actually stored in the same shed as the Power Station transformers). Fred explained that these fertilizers were used when large quantities of oranges were grown on Aitutaki, at the time the Raro Juice plant was operating in Rarotonga. The bags were unmarked, but according to Fred, they were copper sulphate (obvious from the blue colour), zinc sulphate, ferrous sulphate, and some sulphur (again obvious). We also found a leaking 20kg box of lead arsenate, which Fred wasn't aware of, in amongst the transformers, and rebagged it safely in clearly marked plastic bags. At Fred's request, we took samples of the largest two kinds of unmarked fertilizers, for later analysis.

Fred advised that a detailed inventory existed of the pesticides and fertilizers held at Aitutaki. He checked in his files, however, and later advised that he did not have a copy. Based on the Phase I Report, he confirmed that they were holding about 750 kg of Carbofuran (formerly used for oranges), although a large quantity of Oxymal (Vydate) (formerly used for bananas) had been shipped to the Rarotonga and was being stored at the Agricultural Research Station at Totokoitu. He knew nothing of the reported 650kg of Fenamiphos, and wondered if it was also called Namacur 10G, as he was holding large quantities of this pesticide, which was formerly used for bananas.

We later also visited the Aitutaki Secondary School. Everyone was on holiday except the Secretary, who reported that there was a surplus box of chemicals that has gone missing. She made several phone calls and one of the teachers then visited the school, but we were unable to find the box. We also called up the hospital to enquire whether they had any surplus chemicals, but they advised they had none.

### **Tuesday 30 April**

Attended the morning session of the WSSD Workshop, including the keynote addresses and opening speeches. Prepared a handout for the workshop on the POPs in PICs project. Attended a pre-arranged meeting with all the *Secretaries of the Outer Islands Governments* to explain the project and seek their cooperation in identifying any hazardous wastes stored on their islands.

Tino Vaireka was going to get back to me as soon as possible in the afternoon to start testing the transformers at the Power Station but did not do so. At about 3.30 pm I went up to the Power Station to note down all the information on the transformers and number them. I was not able to start testing them as I had no tools.

I met *Tere Akovar, Senior Supervisor, and Tauu Porea, Generation Manager*, at the Power Station and discussed their asbestos problem. The whole Power Station building, including roof, walls, and even the cladding on the cooling towers, was covered in asbestos, which was in a bad state and disintegrating in some places. I was advised that several contractors on the island had been approached for quotations to deal with it, but had refused to put in a price. I took a sample of the asbestos and agreed to have it tested to see what sort of asbestos it was. I was also advised that many other buildings in the Cook Islands were clad in deteriorating asbestos, including the Justice Dept Building and several schools.

### **Wednesday 1 May**

Attended the WSSD workshop (Environment Day) for the whole day.

Learnt about the ADB project, which is being managed locally by the Ministry of Works. It is planned to build two landfills (Rarotonga and Aitutaki) and also two septic lagoons for septic tank sludge, as well as measures to upgrade refuse collection and septic tank sludge collection. The project is to be funded by a \$US2 million ADB loan, approved and effective as at October 2001. Contractors for the "Design / Build" Contract have been shortlisted to six, and these six are now going through a rigorous selection process. "State of the art" lined landfills and septic tank sludge treatment lagoons will be built, together with associated collection and support systems. The loan will be repaid with "user-pays" charges imposed for use of the new facilities.

Learnt about the Recycling Centre, which has been established on Rarotonga with the assistance of NZODA. Glass is being collected, sorted and broken for shipment.

Selected plastics are being collected, and aluminium cans are being collected. Paper is also being collected and sorted, with assistance from the New Zealand company Paper Reclaim. A plastic bailer and a can crusher are in operation on the site. Shipping companies are involved in the project, and all the recyclable materials are taken to New Zealand.

Also learnt that the Pesticides Board has been inactive for several years in the Cook Islands, and importation of pesticides into the country is largely uncontrolled.

Spent quite a while at the workshop talking to **Tom Wichman**, who has done quite a lot of work on hazardous wastes in the Cook Islands, including acting as consultant to SPREP.

### **Thursday 2 May**

Met Tino Vaireka at the Power Station and set him up with test kits and safety gear to test the eight old stockpiled transformers there. We were also advised that there was another transformer standing at the front of the power station, which had begun to leak and so was drained and brought out of service. Two of the transformers at the back then tested positive, and oil from the transformer at the front also tested positive.

After setting up Tino for the testing I went with **Vavia Tangatataia of the Environment Service** to the Agriculture Research Centre at Totokoito. There we met Tom Wichman, and also **William Wignore, the Manager of the Agriculture Research Centre**. There were quite large amounts of pesticides and fertilizers stored at the Research Centre, as well as some surplus laboratory chemicals. We were advised that the old Fertilizer Store at Avarua had been cleaned out completely. Most of the fertilizer had been returned to New Zealand for reuse, and the remainder had been brought to the Research Centre or to the Ministry of Works Store.

William showed us around the Research Centre, but advised that he would not be free that day to do any detailed inventory. We agreed to meet again next Wednesday morning and by then he would have had a chance to carry out some inventory work. We could complete the inventory on the following Wednesday. On our look around, we were shown 114 US gallons of Dupont Vydate (24% oxymal in methanol), which had been brought from Aitutaki. We were also shown about 100 litres of dieldrin, and small quantities of lindane, 2,4-D, gesatop, and about 40kg of phostoxin (aluminium phosphide) termite control pellets. There were also numerous other pesticide containers, and in addition there were quite large quantities of fertilizers that were unlikely to be used, including copper sulphate, sulphur and a range of trace elements.

Tom Wichman was concerned about a drum of ethylene dibromide fumigant, which he had brought from the airport to the Research Centre for safekeeping. William remembered it but could not recall where it had gone. He promised to try to find it. Tom also showed us the laboratory chemicals (2 boxes), which were locked away at the

Research Centre. He advised us that one box had come from the hospital, and one from one of the schools.

We then accompanied Tom to the Ministry of Works store. This was being used to store some hazardous chemicals. Several boxes of surplus chemicals had been placed in an unlocked room in the store, and were sitting on the ground. Tom advised that he had picked up these boxes from the hospital and from some schools. There was also a large container, which contained some of the fertilizers left over from the Avarua Fertiliser Store clean-up, as well as a large number of old batteries of various sorts. The roof of this container was leaking and the contents had deteriorated. Tom advised that the fertilizers in the container were mainly copper sulphate and the re-bagged dust from sweeping the floor of the Fertiliser Store.

The Works store was also being used for packaging batteries for shipment to New Zealand for reprocessing. One shipment had been sent already, and another was planned, with some of the packaging already done, although this work appeared to have stalled.

In the afternoon I went with Vavia firstly to the hospital, where we met ***Douglas Tou, the Hospital Laboratory Manager***. Douglas showed us around, and also showed us 2 litres of carbon tetrachloride they wanted to get rid of. Tom Wichman had taken all the other surplus laboratory chemicals away. Douglas also showed us the disused hospital incinerator, which was a large (and probably expensive) MacDonalds unit from New Zealand, which had, according to Douglas, never worked properly. It was installed in 1996 with NZ aid money, and they tried to operate it for a year before they gave up on it. We inspected the open pit near the hospital where they were now disposing of their clinical wastes. It was a large hole where all wastes were simply dumped and set on fire, using petrol. Much of the waste was unburnt and smoldering when we were there.

Vavia and I then went back to the Ministry of Works store and made an inventory of the chemicals stored in boxes there. They were the usual collection of acids, alkalis, a large variety of salts, oxidizers and reducers, and also miscellaneous organic chemicals. There were lots of unknowns, mostly small quantities, and one large (5 litre) container of unknown syrupy liquid that looked like concentrated sulphuric acid. My main concern was that this store was unlocked and uncontrolled. Works were also asking for all these chemicals to be removed.

I called up ***Gail Townsend, Secondary School Science Adviser, Ministry of Education (Ph 25270)***. Gail advised that even though some laboratory chemicals had been removed from the schools, there were still some chemicals left. I agreed to meet her the following Wednesday.

### **Friday 3 May**

Flew to Mangaia with Tino, arriving at 10.30am. We were met by ***Lucky Tungata, the Mangaia Ministry of Agriculture supervisor***. Lucky took us to the Power Station where we met ***Mata Herman***, one of the supervisors. Mata advised that there was only one

stockpiled transformer, which we tested, and we also tested the oil in the associated switch. Both were negative. We also tested two drums of old oil we were advised was transformer oil. Again both were negative. In 1996 a new electricity supply system had been installed in Mangaia, complete with underground reticulation next to the main road that goes around the whole island and supplies the three villages on the island. The project was NZODA funded. Mata drove us around the island and showed us all the transformers (seven in total). They were all 1995 vintage ABB transformers, and were very unlikely to contain any PCBs.

We then went with Lucky to inspect the Ministry of Agriculture stores, and looked first at the one on the main road in Oneroa. A lot of old fertilizers were stored here from the time of the old pineapple industry in the 1970's, the main ones being 50 x 50kg bags of ferrous sulphate, 50 x 50kg bags of potash, and 20 x 50kg bags of copper sulphate. There was also about 5 tons of bitumen in plastic bags, which had leaked out and spilled all over the shed and the adjacent ground. In addition there were two old 200 litre drums of some unknown agricultural chemical. (The only marking on the drum was "agricchemicals".)

We also visited the secondary school and met Jill and Sue, who were teachers there. Sue was the science teacher and she had a look through her small laboratory. The only unknown was a large bottle of liquid that looked like concentrated sulphuric acid. I advised that if she wanted to get rid of any chemicals, she could send them to Rarotonga, to be held with all the other surplus chemicals.

We visited the hospital and met ***Dr S. Tovosia*** from the Solomon Islands, who was the ***Resident Doctor (ph 34027)***. He did not know of any surplus chemicals stored at the hospital, but promised to have a look and let me know before I left Mangaia.

### **Saturday 4 May**

Met a Contractor from Rarotonga who had had extensive experience with asbestos removal in Australia (Joe Khairallah, P.O. Box 2192, Rarotonga, Cook Islands, Ph 682/55556, Fax 23066).

Went with Lucky, back to the Agriculture Store in the old prison in Oneroa. We made an inventory of all the agricultural chemicals stored there – as much as we could, as there were quite a few unknowns. The main identifiable pesticides there were about 150kg of Dupont Karmex, 40kg of Mancozeb 80, 100kg of Diazinon 50 powder, and 10kg of Diazinon 20P liquid. We also went down to the Agriculture Store on the main road in Oneroa and took a sample from the unknown drums. It looked like oil and Lucky suggested it may be the oil they once sprayed on fruit trees.

### **Sunday 5 May**

Went on a tour of the island with *Tuaini Turua, the Island Secretary* and her family. Among other things she showed me twelve more drums of old bitumen, stored at the Works Depot. This bitumen was leaking out all over the floor of the shed.

### **Monday 6 May**

Flew back from Mangaia to Rarotonga in the morning, and then met up with Vavia Tangatataia of the Environment Service. We then flew to Atiu.

In the afternoon we visited the *Atui Power Station and met Rae Simpson, the Acting OIC*. We tested the three stockpiled transformers there. All three were negative. We trained Rae to carry out the test and left three test kits with him to test the three transformers in service on the island, whenever they had a convenient shutdown.

We then went to the Agriculture Store and met *Maraa Matio, the Atiu Ministry of Agriculture representative*. There was quite a number of surplus agrichemicals stored there, which they no longer wanted. These included 105kg of Dupont Hyvar, 90kg of Dupont Karmax, 36kg of Ridomil 25WP, and 90kg of Karathane. There were also numerous bags of surplus fertiliser, including 23x50kg bags of sulphur, and 17x50kg bags of borate 48Fine.

### **Tuesday 7 May**

In the morning we visited the Atui secondary school and hospital to check for surplus chemicals, but neither place had any. The secondary school said they had already given their surplus chemicals to Tom Wichman.

We then flew back to Raroronga, after waiting three hours for a late plane.

When I got back, I met I'o Tuakeu-Lindsay and discussed my findings from the visit to the Cook Islands. We also discussed the Cabinet submissions on the Letter of Agreement and the Stockholm Convention. At I'o's request, I redrafted the Stockholm Convention submission.

### **Wednesday 8 May**

Vavia and I visited the Totokoito Agricultural Research Centre again, and met William Wigmore. William had prepared a detailed inventory of all the agricultural chemicals held at the Research Centre, and he was also in the process of repacking all the pesticides. He had not been able to locate the drum of ethylene dibromide. We discussed using the Research Centre Store as a store for all the surplus pesticides from the outer islands, and William readily agreed to do this. We also discussed the possibility of using the Store for other surplus chemicals such as those from the schools and the hospitals. (Some of these chemicals had already found their way to the Store.) William again did not see a problem provided this was not abused, but said that we would need to write and get official approval to do this.



We then returned to the Environment Service office and I handed over to Vavia the surplus testing kits, safety gear and sample containers, so that additional testing could be done of the Aitutaki transformers soon to come out of service, and the some of the “in-service” transformers. We went to see Tino at Te Aponga Uira and he showed us the results from the Alstom testing of 26 in-service transformers. All 26 had tested negative, based on laboratory testing.

We went to Parliament House to try and secure a copy of the Customs Act. Eventually we discovered that the Cook Islands Customs legislation was the 1913 New Zealand Customs Act of 132 pages and no copies were available.

In the afternoon we had several meetings on asbestos. I had received the results of the testing of the Power Station asbestos and it was positive for brown asbestos (amosite) and white asbestos (chrysotile). We discussed the implications of this result, especially the positive result for the more serious brown asbestos.

I then met ***Terry Hagen, Secretary of Justice***, and he showed me around the Justice Dept Building and the very large building behind the Justice Dept Building, where the Raro Juice canning operation was carried out. This building was now being used for a variety of light industrial uses. The roofs and walls of both buildings were clad in deteriorating asbestos materials, and these buildings were due for demolition by the end of the year, so that a new Courthouse, Justice Dept offices and a large carpark could be constructed. At Terry’s request, I took a sample of the asbestos cladding.

We then had a meeting with the ***Cook Islands Investment Corporation***, including the ***Chief Executive, Joseph Caffery***. The CIIC is an arms-length fully Government owned corporation, which in turn owns all the Government Buildings in the Cook Islands, including the buildings we had just inspected, the Power Station building, and all the school buildings in the Cook Islands, many of which had asbestos building materials. We discussed the potential health risks which these buildings may or may not pose, and what was required for proper removal and disposal. I suggested that a local inspector could be trained in New Zealand to certify asbestos removal contractors and then this inspector could certify several local contractors, who could then bid for the removal and disposal work, as thought necessary. Certainly this would be needed for the Justice Dept and old Raro Juice buildings, which were due for demolition before the end of the year. Joseph asked whether SPREP would have any money available to assist in training the local inspector, and I agreed to find out.

I then visited the ***Tereora College and met the Senior Science Teacher Phil Bergen***. Phil showed me some surplus chemicals he wanted to get rid of, including white and red phosphorus, quite a lot of acids, such as concentrated nitric and phosphoric acid, and some organics such as benzene, xylene and pyrogallol. He advised that there was a similar stockpile at the other secondary school, Tikikaveda, which was on the other side of the island. I didn’t have time to get to this school, but Phil promised to visit this school and check out their surplus chemicals. We agreed that as soon as Phil had

determined and made an inventory of all the surplus chemicals, he would pack them up safely and contact Vavia. It was expected that by then, a suitable place would have been found to stockpile all the surplus chemicals in the Cook Islands.

I then had a debriefing meeting with I'o of the Environment Service, regarding my whole Cook Islands visit and findings.