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IN THE COOK ISLANDS

Contemporary Used Oil Audits

Presented to:

Secretariat of the Pacific Regional Environment
Programme
(SPREP)

RAPPORT



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Executive Summary

This report presents the findings of a contemporary used oil audit in the Cook Islands. In-country visits, interviews and data collection that support this report were conducted by Golder in May 2014.

The key findings of this report are:

- The island of Rarotonga is the largest island and the main urban centre. The estimated resident population of the Cook Islands in 2011 was 17,791 of whom 74% live on Rarotonga, and 12% on Aitutaki. Tourism is the dominant industry(67.5% of GDP)
- Total imports of lubricating and hydraulic oil equal approximately 110,000 L per year.
- 3 major companies (TRIAD petroleum, Pacific Energy SWP ltd and TOA Petroleum) supply lubricating and hydraulic oil.
- The main consumer is the public power authority: Te Aponga Uira (TAU) and their Power Station located in the Avatiu valley (Rarotonga).
- The main volume of waste oil is generated by the TAU power station. All the waste oil (15,000 L) is currently collected by Pacific Energy who is helping TAU, and shipped on their LCT to Fiji. TAU should secure this agreement with PE.
- Considering the consistency of the national import figures, the total volume of waste oil to be potentially collected should be 55,000 L per year, including the 30% generated by TAU power station.
- The National Solid Waste Management Strategy 2013-2016 for the Cook Islands is the instrument to better manage Solid Waste and Waste Oil in particular. Cook Islands have ratified Basel and Waigani Conventions.
- Waste Oil Management strategy could be a mix of the following options :
 - Obligation of take-back services for major oil companies;
 - Locate a waste Oil Storage Site to store the waste oil collected in the Islands;
 - Shipping to Auckland as many shipping containers return to New Zealand empty; and
 - With the increasing demand from the Hotel Industry, strongly recommend reinvesting in a new industrial laundry facility, which would use more than 30,000 L / year of waste oil as it has in the past.
- The common approach to fund a waste oil management programme is the introduction of a universal levy for all oil imports, which is the first principle of polluter-pays.



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1.0 INTRODUCTION

1.1 Purpose

The Secretariat of the Pacific Regional Environment Programme (SPREP) retained Golder Associates New Caledonia Sarl (Golder) to perform contemporary used oil audits in Cook Islands, Kiribati, Nauru, Solomon Islands, Tonga, and Tuvalu to establish volumes of lubricating, hydraulic and transmissions oils imported into each country and the volume of used oil produced, and stored or otherwise disposed of.

The major sources of used oil are power generation and motor vehicles. Used oil contains high levels of heavy metals and some amounts of more toxic chemicals.

Oil spilled on the ground contaminates the soil and leaches into the water system, polluting water courses, groundwater, lagoons and the ocean.

This report presents the findings of a contemporary used oil audit in Cook Islands.

In-country visits, interviews and data collection that support this report were conducted by Golder in May 2014.

1.2 Scope of Services

The scope of services for this consisted of the following tasks:

- Establish and document national oil import/generation volumes and rates for the last 3 years ideally 2011, 2012 and 2013;
- Establish national used oil production rates for the last 3 years ideally 2011, 2012 and 2013;
- Oil Audit Balance for the last 3 years ideally 2011, 2012 and 2013;
- Document and summarize existing national used oil management procedures;
- Document and summarize existing national used oil management instruments.

1.3 Interviews/Consultation

The National Environment Services were the primary point of contact and they suggested the most appropriate people to talk to. The Table 1 lists the people interviewed or consulted visited, during the in-Country Visit (28 April to 2 May).



CONTEMPORARY USED OIL AUDIT IN THE COOK ISLANDS

Table 1: Stakeholders interviewed / consulted (April-May 2014)

Organisation	Name
<u>Public institutions</u>	
National Environment Services (NES)	Vaitoti Tupa (Director) <ul style="list-style-type: none">• Vavia Tangatataia• Muraai Herman• Louisa Karika
Ministry of Finances and Economic Management	Enua Pakitoa (Senior Statistician)
Ministry Of Infrastructure and Planning (MOIP)	Tekao Herrmann (WATSAN Manager)
<u>Power Authority</u>	
Te Aponga Uira (TAU)	Charles Koronui (Manager Generation)
<u>Oil company</u>	
TRIAD Pacific Petroleum LTD	Graeme J. Wiig (Manager)
Pacific Petroleum	Mark Vakai (Manager)
Pacific Petroleum Services	Patrick Guedon (Lubricating manager, based in Noumea)
<u>Main retailer</u>	
MOTOR CENTER LTD	Scott Jensen (Parts Manager)



1.4 General facts about Cook islands

The Cook Islands comprise 15 widely-dispersed islands. The island of Rarotonga is the largest island and the main urban centre. The estimated resident population of the Cook Islands in 2011 was 17,800 of whom 75% live on Rarotonga (13,100), and 12% on Aitutaki (2,050).



Figure 1: Cook Islands Map

Tourism is the dominant industry (67.5% of GDP) with lot of Resorts, adding 120,000 tourists per year to the Cook Islands local population.



Two international shipping services connect Rarotonga with Auckland, Samoa, Tonga and Niue.

2.0 COOK ISLANDS LUB OIL IMPORTS

2.1 National Statistics

Import data was obtained from the Ministry of Finances and Economic Management, Statistics.

Table 2: Cook Islands Import of Lubricating oil – 2009 to Sep. 2013

Year	Description	Quantity (Liters)
2009	Lubricating oils	175 196
2010	Lubricating oils	105 911
2011	Lubricating oils	72 664
2012	Lubricating oils	117 700
2013 (Jan to Sep)	Lubricating oils	59 978

The annual average import of lubricating oils, based on the total imports over five years should be 110,000 liters.

Over the last three years, the annual average import is reduced to 90,000 liters.

2.2 Main Import Stakeholders

As this information is commercially sensitive, the details provided by main importers have to be kept confidential, so we used the general figures.

There are one major consumer (Power Station) and 3 Oil companies operating in Cook Islands, and one of these (Pacific Energy) is primarily involved with servicing the aviation sector.

2.2.1 Power Supplies

The Cook Islands Investment Corporation (CIIC) oversees operations of Te Aponga Uira (TAU), which operates power supplies on Rarotonga. On the outer islands, the island authorities are responsible for their own energy needs assisted by grants channeled through the Ministry of Infrastructure and Planning (MOIP).

CIIC is a holding company for the state-owned enterprises, and oversees and regulates the operations of TAU and Aitutaki Power Supplies (APS) on behalf of the Prime Minister.



2.2.1.1 *Te Aponga Uira (TAU)*

The power station is located in the Avatiu Valley.

The generation capacity of TAU is about 9.5 MW out of nine gen-sets. Most of the installed generators capacity has been de-rated due to various engine problems in 2010-2011.

Table 3: Te Aponga Uira Lube Oil usage in Litres. Jul 2010 to Jun 2013.

Year	Lube Oils (Purchased)	Lube Oils (Usage)
Jul 2010-Jun 2011	51,455 L	42,280 L
Jul 2011-Jun 2012	92,300 L	51,217 L
Jul 2012-Jun 2013	6,061 L	40,375 L
Average	50,000 L/y	45,000 L/y

As shown in table 4, the annual Lube oil consumption is around 45,000 L at the Power station.

Recent PV Solar installations and the on-going energy efficiency program also explain the decrease of the demand in lube oil.

2.2.1.2 *Aitutaki Power Supplies (APS)*

Aitutaki is the second most popular tourist destination of the country. A new power station was commissioned on October 2009. The new equipment at the station includes three Cummins C900D5 generators units.

2.2.2 *Triad Pacific Petroleum Ltd*

Triad is a local and private-owned company. They import lube oil using shipping containers, with the oil in drums and retail containers. There is no obligation to collect or export any waste oil.

The total volume given by the Executive Management for the last 3 years is 120,000 L, so the annual average rate is 40,000 L.

NB: the Power Station Lubes are not included in these figures.



2.2.3 Toa Petroleum

During our visit, Toa had some important issues in Cook Islands (about quality of fuel) and it was not possible to have a meeting with TOA staff.

Toa is a local and private-owned company. In 2011, during the studies done by SPREP about Organic Waste and Waste Oil Strategy Enhancement, it has been noted that TOA offered a take-back service to their own customers. The services included provision of IBC container which are placed with some of their larger users and collected on a regular basis, then exported to New Zealand (Salters Cartage).

It has to be confirmed if TOA is still interested to support and operate an island-wide collection and export programme, especially for outer islands.

2.2.4 Retailer

There are a lot of retailers at Rarotonga but Motor Centre Ltd is the main one.

The Cook Islands Motor Centre Ltd has operated in the Cook Islands for over forty years and supply vehicles, motorcycles, marine and power products and services.

Based on invoiced quantity over the last three years from Jun 2011 to Jun 2014, they record sales volumes of 27,000 L of Lube Oil or about 9,000 L per year and it is consistent with their apparent current position as the main supplier to small volume users.

2.2.5 Prices

The price of 30W40 (1L) is NZ\$ 16.00, 30W40 (20L) is NZ\$ 200.00, 15W40 Unilube (200L) is NZ\$ 1,200.00, all included VAT (15%).

The official annual average imports of lubricating oils, based on the total imports over the last years is about 110,000 liters. TAU (power generation) is using 45% of this volume.

TRIAD is the main importer with more than 80% of the importation of Lube Oil (including Lube Oil for power station).



3.0 COOK ISLANDS WASTE OIL RECOVERY

It is generally recognised that only about 50% of the oil sold will end up as waste. Considering the consistency of the national import figures, the total volume of waste oil to be collected should be 55,000 L per year.

3.1 Power Stations

The major source of used oil is the power generation.

TAU generates (75 x 200 L drums) 15,000 L of waste oil per year.

The waste oil is well stored on site in a 13,000 L tank prior to being transferred to drums (Figure 1).

In the past, TAU had a stockpile of about 250 x 200 L drums (50,000 L) accumulated on site as TRIAD Petroleum, their main Oil supplier has no obligation to collect or export the waste oil.



Figure 2: Waste Oil Tank - TAU Power Station



CONTEMPORARY USED OIL AUDIT IN THE COOK ISLANDS

TAU has now an arrangement with Pacific Energy South West Pacific Ltd (Pacific Petroleum Group) who has collected and shipped approximately 60,000 L of waste oil at Fletcher Pacific Steel in Fiji, which started in July 2013.

The Notification of Transboundary Movement of Waste (Waigani Convention) only allows the quantity of 60 x 200 L drums (12,000 L) of waste oil per shipment.



Figure 3: Waste Oil Management at Power Station

APS, the second power station located at Aitakuki generates and well-stores 3 to 5 drums of 200 L of waste oil per year. It has been collected by TOA in the past.



3.2 Motor Vehicle

The main distributor (TRIAD Petroleum) does not offer a take-back service.

TOA used to offer these services to their own customers, including a fee in their cost for collection, storage, port handling and shipping.

3.3 Cook Islands options for using waste oil

Since 2012, there are no more possibilities to use waste oil in the country.

In the past, a large laundry facility, which was servicing the hotel industry, included a boiler which used waste oil coming from the Power station (600 L/week).

Unfortunately, the laundry has burnt down and has not been replaced.

3.4 Waste Landfill

The Cook Islands government is active in advocating “zero waste” to encourage recycling and reduce waste.

In Rarotonga, the current landfill has been in operation since 2005; the landfill is very well managed.

Only, the solid waste is accepted on site. So there is no available public site to store waste oil.

3.5 Transport services

Two international shipping services connect Rarotonga with Auckland, Samoa, Tonga and Niue.

The shipping costs to Auckland, is approximately US \$4,000 for a 20 Feet Container. Many shipping containers return to New Zealand empty.

4.0 REGULATION DRIVERS

There is no specific legislation on waste oil management but a real need for coordination in implementing or reinforcing a waste oil management programme.

- **National Environment Services (NES)** has currently not enough power to control the storage and disposal sites.
- Because the TAU power station and other Generators are the most important source of generation of waste oil, the **Energy Division (ED)** is well located to reinforce the regulation.



ED is responsible for many of the functions of a regulator, including the setting of standards for the provision of electrical service, as well as standards for the quality of petroleum products used in the country. The Division is also involved in the development of energy in the outer islands, including capacity-building measures, both in terms of human resource and knowledge of energy management. ED is also responsible for setting the electricity tariff, and for regulation of the tariff.

Competences exist but need to be managed in a focal point that will take the responsibility. The National Solid Waste Management Strategy 2013-2016 should allow this.

- A **National Solid Waste Management Strategy 2013-2016** has been developed for Cook Islands. Immediate priorities are the :
 - Review and drafting of new waste management legislation;
 - Establishment of a dedicated governmental entity or division to be the focal point for the management and coordination of all aspects of solid waste;
 - Establishment of a dedicated solid waste management fund;
 - National waste audit; and
 - Economic assessment of the costs of Solid waste management in the Cook Islands.

Cook Islands has also ratified **two International hazardous waste conventions**: Basel and Waigani.

- There are some obligations for the countries, members of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal :
 - Minimise generation of hazardous waste;
 - Ensure adequate disposal facilities are available;
 - Control and reduce international movements of hazardous waste;
 - Ensure environmentally sound management of wastes; and
 - Prevent and punish illegal traffic.
- The Waigani Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region.



5.0 DISCUSSION

There is at least 55,000 L per year of potentially recoverable Oil in Cook Islands.

After being stored in a well-managed system operated by TAU at their power station, 30 % of this annual volume is currently collected by Pacific Energy SWP Ltd (Pacific Petroleum group) and shipped to Fiji and use as an industrial fuel at Fletcher Steel Plant.

TAU confessed that collection and shipping with Pacific Energy SWP Ltd were free of charge. As there is no contract between TAU and PE SWP Ltd, this solution seems rather temporary and not viable in the long term.

TRIAD which is the main importer of lube oil in Cook Islands has no solution and no willingness to collect, store and export the waste oil.

During this study, we could not meet with TOA Petroleum, the other local Oil Company which had a take-back service and export the waste oil from its own customers to New Zealand.

Apart from collecting, storing and exporting the waste oil out of the country - all these activities plus handling, shipping would increase retail prices - we would suggest to assess the benefits of having a new industrial laundry with special boilers which would operate with the waste oil produced in Cook Islands. In the past and with an old equipment, they have used up to 600 L/week (about 30,000 L per year).

There will be a steady demand from the hotel industry in the country. It will also be in line with the waste management principles: recycling waste in the country whenever possible.

The funding for this option could come through a universal levy on all oil imports.



Page signatures

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