

**Mission Report**

**Used Oil Stockpiles  
Assessment  
Mission  
to  
Majuro  
Republic of the Marshall Islands**

**March 2018**

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## Used Oil Stockpiles Assessment Mission Majuro, RMI, March 2018

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## List of Acronyms

ADF	Advance Disposal Fee
B/L	Bill of Lading
EPA	Environmental Protection Authority
FCL	Full Container Load
FSM	Federated States of Micronesia
IMODG	International Maritime Organisation Dangerous Goods Code
IBC	Intermediate Bulk Container
KAJUR	Kwajalein Atoll Joint Utility Resources
MAWC	Majuro Atoll Waste Company
MEC	Marshalls Energy Company
MEL	Marianas Express Line
MRF	Materials Recovery Facility
OEPPC	Office of Environmental Policy and Planning
PBF	Pacific Bulk Fuels
PDL	Pacific Direct Line
PIC	Pacific Island Country
RFP	Request for Proposals
RMI	Republic of the Marshall Islands
SPREP	Secretariat of the Pacific Regional Environment Programme
SWM	Solid Waste Management
TA	Technical Assistance
TEU	Twenty-foot Equivalent Unit (standard shipping container)
TT	TankTainer (25,000 litre ISO tank in a TEU frame)

## Executive Summary

This report covers the visit to the Republic of the Marshall Islands (RMI) of March 4<sup>th</sup> to 11<sup>th</sup> 2018, as part of the consultancy engaged by SPREP under the Global Environment Facility's Pacific Assistance Strategy: Integrated Management of Solid and Hazardous Wastes and Persistent Organic Pollutants (GEFPAS uPOPS) project to update the situation in the RMI regarding their used oil stockpile. The main purpose of the mission was to develop a practical proposal to remove the used oil stockpile overseas for processing.

The RMI (Majuro Atoll only) was chosen for a detailed site investigation once it was identified during a desktop review as one of two priority Pacific locations requiring assistance to remove a critical used oil stockpile. The RMI oil stockpile is primarily in two locations: the Marshalls Energy Company Tank Farm at Delap, Majuro, and at the Kwajalein Atoll Joint Utility Resources (KAJUR) power plant on Ebeye Island in Kwajalein Atoll.

### Existing Stockpiles

The MEC site has 2,433,000 litres of used oil in two large storage tanks on their tank farm, one with 1.78 million litres (tank # 3) and one with 650,000 litres (tank # 8). Each tank has a capacity of 2.8 million litres, but tank # 3 is in urgent need of repair and all the oil needs to come out of it to do so. Much of this oil is contaminated diesel 'slops', and it has a high water content, although some of the water can be drained off periodically. The estimates reported for MEC are obtained through daily dip readings of the tanks, and so can be considered very accurate.

The KAJUR stockpile is in two 25,000 gallon tanks, and one is reported as full whilst the other is 'nearly full', which means that the stockpile is around 190,000 litres. There is reported to be a buried 6,000 gallon tank which is reported to have an unknown quantity of used oil in it. This is estimated at an additional 10,000 litres.

The overall increase in used oil stockpiles since the 2014 audit is estimated at around 1 million litres. The difference between what is available and the total stockpile in the table below is that where oil is in large storage tanks on the tank farm a significant quantity sits below the suction level, and so is considered 'unavailable' although it can be removed if really required. The table below provides an overview:

Location	2014 QTY	2018 available	2018 total
<b>MEC Tank Farm</b>	987,500	2,191,000	2,433,000
<b>KAJUR Ebeye</b>	302,000	190,000	200,000
<b>Other</b>	109,860	N/A	N/A
<b>Totals</b>	<b>1,399,360</b>	<b>2,381,000</b>	<b>2,633,000</b>

### *Estimated quantity of stockpiled used oil in the Marshall Islands (litres)*

The 2014 SPREP Used Oil Audit noted twenty six locations with mostly small quantities on Majuro. These are not counted as they must be taken to the MEC tank for aggregation and export. Currently, small producers do take their used oil to MEC for inclusion into the storage tanks, paying \$1/gallon (about 25¢/litre) to do so.

## **Removal of Stockpiles**

There are no local use options that will make any impact on these stockpiles, and so this large used oil stockpile must be exported to an overseas facility where it can be processed for incineration or re-refining.

The most economic and safe method of removal is highly likely to involve the use of T14 ISO Tanktainers (TT) as these are used to ship bulk liquid fuels to Majuro. Shipping lines serving the RMI are potentially able to easily direct TT towards New Zealand. A New Zealand company, Pacific Direct Line (PDL) has TT that are used to import fuel into the RMI and PDL has said that these TT can be backfilled with used oil, but a cleaning charge does apply after emptying at the receiving end, in addition to freight costs. Each TT has a nominal maximum capacity of 25,000 litres, and will hold approximately 21,000 litres of used oil at the backfill rate that is expected.

Removal of the 2.2 million litres of used oil available at MEC would require 105 TT. If removal took place over one year, that will require eight or nine TT per month to be imported, filled and exported. Currently, Pacific International Inc. (PII) imports diesel and gasoline into Majuro in TT from Pacific Bulk Fuels (PBF) of New Zealand, and it may be that sufficient TTs can come in that way to clear the stockpile over time. Bringing in the TT with a product inside significantly reduces the costs of any operation to remove the oil.

For Ebeye, no TT are currently known to be currently landed at Ebeye. KAJUR buys fuel from MEC, which is shipped up to Ebeye every second week from Majuro. It would be possible for KAJUR to buy some fuel in TT from overseas so as to have TT to backfill with used oil. Containers cannot be moved off the dock container yard on Ebeye, so any TT must be emptied and backfilled with used oil on the dock, all by tanker from KAJUR. Nine to ten TT should be sufficient to remove the used oil stockpile at KAJUR, and the shipping rotation time is around two weeks, so if one TT came every two weeks for emptying and backfilling, then this would take around five months to clean out the Ebeye stockpile.

Any used oil shipment will require a Basel permit. The RMI is not a party to Waigani, and Fiji is not a party to Basel, and this may make Fiji an unsuitable destination, but New Zealand will be acceptable as it is a Party to Basel. However, a bilateral agreement to accept the used oil, between the RMI and Fiji, would overcome this difficulty. The end user in Fiji will burn the oil as fuel, whilst there would be additional costs for disposal in New Zealand.

A Request for Proposals can be advertised, and let, by SPREP, for the removal of the used oil using ISO TT. A simple payment schedule can be based on a specific amount per TT exported, on submission of a Bill of Lading to SPREP. Any successful bidder must show competency with import and/or export of TT, pollution and spill control and also a relationship with an approved receiver overseas and a shipping company, as part of any successful bid criteria. These aspects are covered below in the report.

It should be noted that MEC has recently had a Waste Oil Management Plan - funded by IUCN - developed for their operations, covering technical aspects of handling the oil on site; and the authors recommend export of the used oil in ISO TT (tanktainers) as being the best option. A list of the key local stakeholders and their contact details is provided in an appendix.

## **1. Introduction**

This report covers the visit of the consultancy engaged by SPREP under the Global Environment Facility's Pacific Assistance Strategy: Integrated Management of Solid and Hazardous Wastes and Persistent Organic Pollutants (GEFPAS uPOPS) project to update the situation in the Republic of the Marshall Islands (RMI) regarding the used oil stockpile. The mission was conducted by Alice Leney between March 4<sup>th</sup> and 12<sup>th</sup> 2018. The mission was one of three conducted as part of the consultancy, two to counties with stockpiles of used oil identified as a priority for action, FSM and Marshall Islands, and one to the BlueScope steel company in Fiji in an effort to find a market for the used oil.

### **1.1 Aim of the Mission**

The overall aim of this mission was to determine if there were ongoing used oil use or treatment processes going on that would reduce the stockpile, or develop a work plan and budget for the export of the stockpile. The stockpile quantity estimate was also updated.

### **1.2 Mission Outcomes**

The mission had the following outcomes:

- Update of the stockpile status from 1.4 million litres to 2.6 million litres;
- No significant local use was found that would reduce the ongoing stockpile;
- Determination that bulk export of the stockpile was the only feasible option;
- Recommendations as to a system to use T14 ISO Tanktainer bulk fuel containers to export the used oil stockpile to a destination to be determined (ideally Fiji) for incineration as fuel for steel manufacture;
- A general costed plan to export the used oil so as to enable a Request for Proposals to be issued;
- Description of a sustainable system that could be put in place, based on the experience gained with exporting this stockpile, which would assist local generators of used oil to dispose of their used oil in the future.

The details supporting these outcomes are found below.

## 2. Assessment of Stockpiles

The 2014 used oil audit identified two large stockpiles of used oil, at the Marshalls Energy Company (MEC) Tank Farm at the Delap Dock on Majuro, and at the Kwajalein Atoll Joint Utilities Resources (KAJUR) power plant site on Ebeye. In addition, in 2014 a significant quantity of oil was identified at some twenty six sites around Majuro, the largest being at Pacific international Inc. (PII), a construction company, but the company was using some of that oil for fuel in a bitumen plant for road surfacing. As these small stockpiles change rapidly in quantity, and any used oil from the public should be taken to a bulk storage tank prior to export, the small stockpiles were not investigated by this mission. MEC currently does accept used oil from the public at US\$1 per gallon, and local generators are actively encouraged by the RMI Environmental Protection Authority (EPA) to take their used oil to MEC for disposal.

Generally, used oil volumes are rounded as exact numbers of drums or volume of bulk storage, contents, or the fill rate of individual containers cannot be verified, although every effort was made to give reasonable estimates. A 'drum' is taken as 55 US gallons, or 200 litres. All 'gallons' are US gallons at 3.79 litres each gallon.

### 2.1 MEC Majuro Stockpile

MEC has two bulk storage tanks holding used oil in its Delap Tank farm, of 750,000 gallons each nominal capacity: Tank 3 has 470,984 gallons, being 1,782,900 litres; Tank 8 has 171,804 gallons, being 650,350 litres. The combined total is 2,433,000 litres. These figures are from tank dips conducted on March 2<sup>nd</sup> 2018.

These two tanks do have an unusable quantity which is below the suction pipe in the tank, and these figures are 32,000 gallons each for Tank 3 and 8, being 242,000 litres in total noted as 'unavailable'. Thus the stockpile that can be potentially recovered from the MEC tanks is 2,191,000 litres, or about 2.2 million litres.

The inaccessible area is useful as it acts as a water trap as the water will sink to the bottom. Site observations reported by *ener-g* as part of a recent consultancy indicate that Tank 8 has 1m of water inside<sup>1</sup>, which is 70,000 gallons or 265,000 litres. This is 144,000 litres more than the inaccessible 'reserve'. This would amount to approximately seven ISO TT of watery used oil to be removed before the real used oil could be accessed. *ener-g* does report use of a small tank - Tank 10 - being used to let used oil settle, and so water can be drained off: the consultants do recommend the installation of an oily water separation system for long-term use. Quantities of water settling out, and drained off, will affect the stockpile total. It is of note that the recent *ener-g* report indicates some inconsistencies with the measurement of the tanks<sup>2</sup>.

Tank 3 is in the priority list for maintenance work, and this tank would need emptying first so that this work can be done, as this has been in the work schedule for the past few years but the used oil stockpile has prevented this urgent work<sup>3</sup>; this work was recommended in 2011 by a World Bank survey report.

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<sup>1</sup> " Site observations is that there could be 1m of water in tank 8. (70 000 US gallons) comprising rainwater through damaged roof, water captured in bunds and water introduced from other sources of used oil in tanks." MEC Waste Oil Management Plan - DRAFT Version, *ener-g*, February 2018, p 13

<sup>2</sup> MEC Waste Oil Management Plan - DRAFT Version, *ener-g*, February 2018, p 24 7.3 'Monitoring and Metering' Key Recommendations.

<sup>3</sup> Pers. Comm. Steve Wakefield, Chief Technical Officer, MEC, March 2018.

## 2.2 KAJUR Ebeye Stockpile

The power plant on Ebeye is operated by Kwajalein Atoll Joint Utility Resources (KAJUR) under a shared Board with MEC, providing power, to the community of Ebeye and some islands along the causeway to Gugegue Island. The plant is reported to have two 25,000 gallon tanks full of used oil, one full and the other 'almost full'<sup>4</sup>. These would comprise perhaps 190,000 litres. There is another tank of 6,000 gallons capacity, and underground, which may have some oil in it. The total used oil stockpile on Ebeye is expected to be of the order of 200,000 litres. It seems there is very little spare capacity, and the 2014 report says that oil was being transferred back to Majuro then as there was no capacity to store used oil. The KAJUR plant produces regular quantities of used oil, consuming around 24,000 litres of lubricating oil per year<sup>5</sup>. They receive approx 70,000 gallons of diesel fuel fortnightly by fuel boat from Majuro and MEC.

## 2.3 Other Stockpiles

The 2014 audit identified some number of small workshop stockpiles at twenty six different locations: these vary from a few litres up to 73,000 litres at Pacific International Inc. (PII) construction yard. EPA has been encouraging all used oil producers to take their oil to MEC for storage, although MEC charges \$US1/gallon (around 25¢/litre) for this disposal service. For the purposes of removing the stockpiles, these small stockpiles must be taken to a central location for aggregation, and the obvious place is MEC. As such, these small stockpiles have not been considered for this report. There is plenty of storage at MEC to take these stockpiles ongoing into the future if the main tanks can be cleared for maintenance. A proposal regarding how this local collection might be encouraged is detailed below.

## 2.4 Stockpile Total Estimates

Total stockpile quantity is clearly not exact; variability is clearly seen above, and the time difference between the 2014 audit and today's estimates helps to bring that variability into perspective. Overall, it can be expected that the stockpile is perhaps at around one million litres larger than 2014.

**Table 1: Current stockpiles of used oil in the RMI, litres**

Location	2014 QTY	2018 available	2018 total
<b>MEC Tank Farm</b>	987,500	2,191,000	2,433,000
<b>KAJUR Ebeye</b>	302,000	190,000	200,000
<b>Other</b>	109,860	N/A	N/A
<b>Totals</b>	<b>1,399,360</b>	<b>2,381,000</b>	<b>2,633,000</b>

<sup>4</sup> Ibid: p 18

<sup>5</sup> RFP for oil supply 120 drums to KAJUR, '1year supply', Marshall islands Journal, March 2 2018.p 31



### 3. Annual Used Oil Generation Estimates

Given the changes since 2014 seen above, some crude estimate of the rate at which the stockpile is growing can be made. The difference between the 2014 estimate and the 2018 estimate, excluding the small stockpiles, is 1.34 million litres. In the 43 months between the estimates, that would give a crude rate of 374,000 litres per year increase. It is assumed that the difference in the KAJUR stockpile in 2014 and today was transported to MEC<sup>6</sup> (100,000 litres).<sup>7</sup>

The recent *ener-g* report<sup>8</sup> states: MEC have advised that the Majuro power station operations generate approximately 1,000 US gallons per month, and the KAJUR operations on Ebeye generate approximately 250 US gallons/month. At these figures, that would be 1,250 gallons per month (4,700 litres) and 15,000 gallons per year (57,000 litres) total, and 55,000 gallons since the 2014 audit (208,000 litres). A recent advertisement by KAJUR for supply of lube oil has an annual demand of 120 drums, 6,600 gallons or 25,000 litres of oil per year consumption for the power plant. At 50% used oil, that would equate to 12,500 litres or 3,300 gallons, or 275 gallons per month.

These numbers point to an annual collection potential of between three and eighteen ISO TT per year. It must be noted that the used oil in the MEC tanks is to a significant extent spilled diesel, and this may result from intermittent incidences rather than being an ongoing generation, so accounting for the large differences.

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<sup>6</sup> Pers. Comm. Steve Wakefield, MEC March 2018: KAJUR sent their existing stockpile to MEC about three years ago, in drums, on the fuel barge.

<sup>7</sup> Marshall Islands Journal: RFP to supply KAJUR, March 2nd 2018 p 30

<sup>8</sup> MEC Waste Oil Management Plan, *ener-g*, February 2018, p 10 2.2 Waste Oil Receiving/Treatment Facility.

#### **4. Current Used Oil Uses in RMI**

The 2014 audit reported that used oil was being burnt in the MEC power plant mixed with fuel, and also PII burnt some as fuel for their bitumen plant. MEC has stopped using used oil mixed with fuel, and as they are expecting new engines soon, and this practise will not be allowed under the engine warranty arrangements.

There are not other widespread uses reported; many car owners do not change their oil, but simply top up the oil. With most cars being reasonably old, oil consumption is probably fairly high.

EPA does have an active program of instructing generators of used oil to take them to MEC Tank Farm at Delap for storage. MEC charges \$US1/gallon for this disposal service, and this does act as a disincentive.

The landfill at Batkan does not accept used oil and has a sign at the gate expressly forbidding used oil dumping.

## 5. Customs Data on Imports

The RMI Customs in Majuro was approached with a request to supply data on oil imports into the RMI from 2014 to 2017 inclusive. The following tariff lines were requested for information on quantity:

27071000	Oils and products of the distillation of high temperature coal tar; benzol (benzene)
27074000	Oils and products of the distillation of high temperature coal tar; naphthalene
27076000	Oils and other products of the distillation of high temperature coal tar; phenols
27079900	Oils and other products of the distillation of high temperature coal tar;
27090000	Oils; petroleum oils and oils obtained from bituminous minerals, crude
27101130	Diesel
27101190	Other petroleum oils and oils from bituminous minerals, not crude or waste oils;
27101900	Oils; petroleum oils and oils obtained from bituminous minerals, not crude;
27109100	Waste Oils; of petroleum or obtained from bituminous minerals, not crude;
27109900	Other

The request was conveyed via the Office of Environmental Policy and Planning (OEPPC). No response was received. It is noted that the RMI import data is still based on a paper import entry system, and as such analysis of import data requires sorting through a huge number of paper import entries, and so is likely to be a task which Customs does not have time to perform. The RMI is expecting to introduce an electronic entry system using HS system tariff numbers shortly, which will greatly facilitate future enquiries of this nature.

## 6. Scenario for Stockpile Export

A plan was developed for removal and export of the used oil stockpile, given the information available, and given the logistics of the situation in the RMI. There are two stockpiles of used oil that can be expected to continue to be generated after any one-off removal. This scenario aims to do two things:

- Remove the existing stockpile of used oil in the RMI;
- Leave in place a system that can be ongoing to deal with future used oil generation and exports.

The key parameters of any used oil stockpile export are:

- 1) How will the oil be physically handled?
- 2) Who will operate the logistics of moving the oil containers around the RMI?
- 3) Who will pay the costs of the export?
- 4) How will any one-off removal contribute to a long-term sustainable system of used oil export?

### 6.1 Handling the Used Oil

There are four possible options: 200 litre oil drums; 1,000 litre Intermediate Bulk Carriers (IBC); 23,000 litre rubber bladders that fill a standard Twenty Foot Equivalent (TEU) shipping container; or 20,000 - 26,000 litre ISO Tanktainers (TT).

The simplest to handle and most cost effective method for the potential 2.4 million litres involved in this export would be approximately one hundred and twenty five ISO TT. Only 18 IBC can be put into a TEU, and whilst there is a source of IBC on Majuro, they are priced at US\$379 each retail and at the 2,400 required that would be a nominal US\$900,000 just to buy them. Drums would be problematic for shipping, unless new drums were used. Rubber bladders require specially prepared TEU units, and have the potential to be difficult to handle unless crews are experienced with these systems. Any leakage of used oil during transport would likely result in the shipping company refusing to take further shipments in that manner. It may also be the case that mixed product materials, such as used oils, are not allowed to be shipped in bladders under new shipping regulations. The most practical and secure method is the ISO Tanktainer (TT).

Use of a T14 ISO TT (the type suitable for hazardous chemicals and acids) would be the simplest to handle and fill. However, these need to be sourced and imported to the RMI in order to fill and export them. The TTs are similar to conventional shipping containers in that they are owned by the shipping line and leased as part of the shipping cost. The shipping line Pacific Direct Line (PDL) does bring in T14 ISO TT to the RMI with fuel inside. The fuel is sold by Pacific Bulk Fuels who are based in New Zealand. These units have a capacity of 24 - 26,000 litres, and the typical fill rate is 85-90% full. This would give a range of 20,400 to 23,400 litres per TT, depending on size and fill rate. It will be assumed for the purposes of calculation that a TT will carry 21,000 litres of used oil.

Pacific Bulk Fuels (PBF) has recently approached MEC regarding the used oil that MEC has, but there has been some issue over the high water content of the used oil. PBF does sell diesel and gasoline (petrol) to PII for their fuel station, and so there is a regular stream of TTs being imported into Majuro and exported empty. PBF would charge MEC to remove the used oil. If the Majuro stockpile required 105 TT to remove it, and the removal took one year, then that would require nine or ten TT to be imported into Majuro, and exported, each month.

For the KAJUR stockpile in Ebeye, it appears that about nine TT in total would be sufficient, which would be straightforward to arrange over a year. Nine TTs of diesel would be less than KAJUR uses per month. If KAJUR bought in some diesel in TTs, instead of buying all diesel from MEC, then they can be backfilled with used oil.

MEC cannot buy diesel for its operations by TT as they have a contract with Mobil Oil to supply diesel. However, this contract does not constrain KAJUR as to where it buys its fuel.

PII buys bulk fuels from PBF for sale at its fuel station by the bridge in Majuro. At least four TTs per month currently come in to PII for its operations.

## **6.2 Stockpile Removal Logistics**

The process should be fairly simple for the RMI exports. There will be two separate handling processes, one on Majuro and one on Ebeye.

### **Majuro**

Each ISO TT imported into Majuro with fuel – gasoline (petrol) or diesel - can be taken to the MEC tank farm when empty, where MEC will fill it with used oil. The TT then gets moved to the dock to await shipping. This requires two container lifts by truck: one from the place where the TT has been emptied, and one from MEC to the dock. Most of the TTs used in Majuro for used oil export - if not all - will be coming from the PII fuel station just over the bridge, about 1km from MEC. The Delap MEC tank farm is directly across from the Delap Dock container yard, so if empty TTs are imported to export used oil then they will not have far to travel.

### **Ebeye**

For Ebeye, the situation is slightly more complicated. Full TTs may need to be imported to keep costs down. Currently, MEC has a fuel contract with Mobil for fuel for the power station, but KAJUR buys fuel from MEC, which MEC ships to Ebeye by fuel barge fortnightly. If KAJUR bought diesel in from overseas in TTs, then those TT can be backfilled. Nine - at most ten -TT are required to remove Ebeye's stockpile, and this is less than a single month's fuel demand at Ebeye, which is around 450,000 litres per month. However, Ebeye has no capacity to move shipping containers off the wharf unless a crane is hired, which is very expensive. So any TTs of fuel imported will have to be emptied on the wharf into a tanker and driven to the power plant, as is the same process used when emptying the fuel barge from Majuro.

For refilling, the empty TT sitting on the dockside (unloaded with the ship's crane) will need to be filled by tanker. KAJUR has two fuel tankers, one at 6,000 gallons, used for regular shipments and a back-up one at 1,000 gallons (3,800 litres). If the small tanker is used to transport the used oil, this keeps the big tanker clean. The small tanker could do runs back and forth to the dock in the period between ship voyages, filling the TT, which would take 5 -6 loads. Given this, it is probably not a good idea to

get more than three TTs on the dock to fill for any given ship rotation, so as to allow plenty of time to fill the TTs. In fact one or two per ship might be a good idea. A ship rotation in Ebeye is around two weeks.

The contractor will be responsible for export of any TT of used oil, including suitable IMODG requirements and Basel permits that may be required, working alongside the RMI EPA as the national Competent Authority for the Basel convention. Using ISO tanktainers ensures that the IMODG requirements are easily met. Using a company that is already handling bulk fuels would clearly be advantageous as they have experience handling ISO TTs.

### **6.3 Estimated Costs of Export**

The costs are few in the RMI, as a good source of TTs already come in filled with fuel, or can be bought in, in the case of Ebeye, but are largely:

- Two container lifts for a TT in Majuro;
- Export of TTs, and Basel Convention documentation preparation costs.
- Cost of filling TTs at MEC tank farm;
- Cost of transporting used oil in a tanker from KAJUR plant to the Ebeye dock (about 300m) to fill the TT

It is assumed for this exercise that the value of the used oil exported is only sufficient to pay for the trucking, handling and TT cleaning at the importing end, and so the used oil has no value to the exporter. This is believed to be the case at Blue Scope Steel in Fiji. A government tax of FJ\$0.02/lit on used oil imported into Fiji. If taken to New Zealand, a disposal charge may be incurred in addition.

MEC have verbally indicated that there would be no charge to fill the TTs at the MEC tank farm<sup>9</sup>.

Container lifts are US\$245 each direction with a side lifter, two lifts being required at Majuro, so that is around US\$500.

Shipping an ISO TT to New Zealand or Fiji can be expected to be around US\$4,500 including BAF and CAF and hazardous cargo premiums. Any contractor handling the export will need suitable insurance, which they should already have if they have experience in this business. There will be documentation costs for preparing Basel permits too.

Costs will be at very least US\$5,000 per TT shipped.

### **6.4 Shipping Routes**

There is a route to Fiji and New Zealand via Busan, Korea, using Kyowa Line, or Pacific Direct Line (PDL). An alternative route exists to New Zealand with transshipment in Suva, or another via China. PDL bring ISO TTs into the RMI for PBF, with fuel inside, in sufficient quantities that the stockpiles could be cleared in a year or so of letting a contract to do so. Marianas Express Line (MEL) operates a fortnightly run from Majuro to Ebeye and Pohnpei, Chuuk, and then Suva in a rotation. Fiji to New Zealand is served regularly by PDL as well as other lines.

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<sup>9</sup> Pers. Comm Shem Livai, Chief Commercial Officer, MEC, March 6<sup>th</sup> 2018.

## **6.5 Contracting and Tender**

A single contractor should be chosen to move and export the TT's required for the stockpile removal. A contract could be put out for open bid, but with important criteria for choosing the contractor, as detailed below. The contractor must be experienced in handling containers, fuels and import / export there-of. It is essential that low bids from inexperienced operators are not entertained, as this process requires experience across several countries.

The UNEP GEFPAS project has a sum of money allocated for used oil removal for priority countries, and a portion of this money can be allocated to the contract to remove used oil from the RMI. An amount should be payable to the contractor based on each TT exported. It may well be beneficial to combine both Pohnpei<sup>10</sup> and RMI into a single contract, should a bidder wish to provide a suitable proposal. It is essential that any bidder for a contract to fill TT and export used oil must have a demonstrated ability in this field, such that the following must be requirements for any bid to be accepted:

- Proven experience in import and handling of bulk fuels and/or lubricating oils;
- A reference from a shipping line serving the RMI that explicitly states that the company is prepared to work with the bidder in importing and exporting T14 ISO Tanktainers containing used oil;
- Preferably an existing capacity to move shipping containers around the RMI;
- A reference from an overseas buyer of used oil that is acceptable to SPREP establishing that the end processing of imported used oil is conducted in an environmentally sound manner.

Any Request for Proposals (RFP) should be structured such that the contractor bids for a price to export each TT of used oil, each TT of a minimum of 21,000 litres, from the RMI. Payment would be made upon presentation of a copy of the Bill of Lading (B/L) for each TT exported.

By making payments based on each TT exported, the uncertainties involved in determining the actual stockpile, which are clearly significant, can be overcome to some extent, and avoid entering into a contract to export a quantity of used oil that is not found to exist. The contractor should have an incentive to avoid exporting oily water as the receiver can be expected to decline to accept further shipments as a result.

A single contract that covers MEC and KAJUR stockpiles is essential. But it may be an advantage to combine the Pohnpei and RMI contracts into one - or at least give the chance for a single entity to bid to do both. If the pool of money available through GEFPAS is combined, then the uncertainties over the size of the stockpiles - in Pohnpei in particular - can be ameliorated to some extent by making the entire pool of funds competitive, in that the contractor claims against the funding pool each time they export and show a Bill of Lading. This way, whoever is getting on with the job of filling TTs gets the opportunity to draw most on the funds and get their stockpile exported. This approach must involve a contract clause that would notify the contractor when the pool of funds were down to an agreed level, so that they were aware that future claims were limited. But where the funding pool is insufficient to pay

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<sup>10</sup> See Used Oil Stockpile Assessment Mission to Pohnpei, FSM, March 2018

for the export of all of the stockpiles, and there are two separate contracts, the contractor who gets on and exports most oil will gain by being able to get more of the funds.

Where a single contract is let for both countries, the contractor has the ability to lower costs through combining the two stockpiles to the receiving company and gain economies of scale. They may also be better able to hedge their potential losses on some shipments where the quantity of the used oil is poor, and this can be expected in some instances from both places, as water has evidently settled at the bottom of large MEC tanks, and the quality and quantity of oil in the Pohnpei landfill is a large unknown. In addition, the sumps under the gensets in the Pohnpei power plant may well contain significant quantities of water, given how much it rains in Pohnpei, and that the sumps are under the floor of an open sided building. A combined contract may help to ameliorate some of these issues.



## 7. Work Plan

The basic work plan is fairly straightforward as the main effort will be conducted by the contractor, and the TT filling by MEC and KAJUR. SPREP will have to draft a RFP and manage any contracts.

**Table 2: Budget and Responsibilities for Tasks**

<b>Task</b>	<b>Budget USD</b>	<b>Timeline</b>	<b>Responsible</b>
Draft Request for Proposals for Used oil exports	N/A	May 2018	SPREP/UNEP
Publish RFP for export in RMI and regionally	N/A	June 2018	SPREP
Negotiate contract and sign	N/A	August 2018	SPREP/UNEP/ Contractor
Contractor commences import/export of TT for used oil filing and removal	\$130,000, or part of entire fund	Sept 2018 - Sept 2019	Contractor/ MEC/ KAJUR

**Table 3: Timeline for Activities**

<b>Task</b>	<b>3rd Qtr 2018</b>	<b>4th Qtr 2018</b>	<b>1<sup>st</sup> Qtr 2019</b>	<b>2<sup>nd</sup> Qtr 2019</b>	<b>3<sup>rd</sup> Qtr 2019</b>
<b>Draft RFP for Used oil exports</b>					
<b>Publish RFP in RMI and regionally</b>					
<b>Negotiate contract and sign</b>					
<b>Contractor commences import/ export of TT for used oil filing and removal</b>					

## **8. Sustainable System for Used Oil Recovery**

In the long term, a sustainable used oil recovery system can be built to service the RMI based on this model for export. The operation of this stockpile removal project should provide solid information as to what the real costs are of this operation, per TT filled and exported. Once a cost per TT can be determined (including a level of profit for any contractor), this can then be converted into a cost per litre of oil imported or exported (there will be a significant difference between the two). This would generate a value for an Advance Disposal Fee (ADF) which could be applied to imports, or exports. It may also result in a regional business coming into place that has experience with exporting used oil in Tanktainers that can benefit other PICs.

### **8.1 Advance Disposal Fee (ADF) Scenario**

The obvious arrangement, if the scenario above proves practical and occurs as envisaged, is that MEC - or a similarly experienced local business - would be the 'System Operator' who would have the right to make a claim against the fund holding the ADF. This would require legislation based on the Extended Producer Responsibility approach; such legislation would be fairly simple, and a model legislation has already been prepared by SPREP under the AFD project in 2013. The 'System Operator' would have a contract with the RMI Government to remove used oil and be able to claim against the fund. The claims against the used oil ADF fund should be sufficient to ensure that the System Operator can make a profit from collecting and exporting used oil.

Given that a significant quantity of oil imported is not collected (the 2014 audit found that typically only about 30% of the imported quantity appears in the used oil stream) this would allow an ADF rate to be selected that would reflect this low return, so keeping down the cost of the ADF itself.

If the cost per TT of used oil exported was US\$10,000, and the TT holds 20,000 litres, then this would require an ADF of 50¢/litre (\$2/gallon). But if only 30% of the oil imported can be expected to be recovered, the ADF could be one third of this, at around 17¢/litre or 65¢/gallon. At a local retail price of around US\$4/litre, that would be a 4.25% price increase to cover the import levy. These figures are conservative, and the true result should be lower, but they indicate the likely scale of ADF required.

However, in the RMI a significant part of the 'used oil' stockpile appears to be diesel slops from power plant operations. These diesel slops would complicate matters as they would not have paid an ADF. However, they may be more valuable than used lube oil, so increasing the value of a shipment, and so this may not matter, where MEC - for example - was the 'System Operator' claiming on the fund and exporting the oil.

### **8.2 Subsidised Used Oil Disposal**

Another option exists that could quickly be put in place without legislation, and would help deal with the small stockpiles particularly. The RMI EPA fines companies and individuals for oil spills, and many fines are incurred by ships in the lagoon. This money is potentially available to act as a fund to pay for people to dispose of their used oil for free. Currently, MEC charges \$1 per gallon (about 25¢/litre) to dispose of used oil, but for workshops producing full drums, this is a disincentive - at

\$US55/drum - to properly dispose of the oil. However, EPA could have a contract with a local company whereby EPA would pay the contractor a monthly per gallon rate for used oil that the public has bought in for disposal, so making the system free, but with the EPA fines being used to subsidise the system. The contractor would need a large tank and be required to export the oil under the contract, and the obvious candidate would be MEC, but it could be another business enterprise. The contractor could also take used oil from ships, and charge the ships for the service, then export the oil. Under the RMI membership of the International Maritime Organisation and the MARPOL Convention, the RMI should take used oil from ships, but this is currently problematic as MEC needs to get rid of its existing used oil stockpile.

This project should provide sufficient information to determine at what cost per gallon used oil would need to be charged to cover the storage and export. Any contract with any service provider to export used oil from FSM and RMI could require that certain actual, incurred, costs are provided to SPREP in order to help develop regional used oil Advance Disposal Fee models.

### **8.3 Legislative Framework**

To support the above proposal of an ADF system, legislation would be required. The only current legislation relevant to used oil is the EPA Solid Waste Regulations, but these do not allow any ADF system to be imposed as such. New legislation would need to be passed to deal with this. The RMI recently passed Container Deposit Legislation which uses the same basic principal as an ADF to recover cans and bottles for recycling.

The key parameters of any new legislation would be that the RMI could impose a levy per litre (gallon) on new oil coming into the country. This money would be held in a Special Revenue Fund at the Ministry of Finance. A 'System Operator' would be designated who had a contract with the government, under which they could claim a certain amount of money for each Tanktainer of used oil they exported. The legislation could be simple, with the detail of arrangements being in the contract between the System Operator and the government. EPA can mandate under the existing Solid Waste Regulations that used oil from workshops and the public must go to a designated collection point - most likely MEC or KAJUR - so that small generators of used oil are covered by the system. The funds levied per gallon would be taken at import in the same manner as the existing beverage container refund system, during the time of filing an import entry. The mechanics of the financial system that are being developed for the current Container Deposit Legislation will be fairly easy to adapt to such a system for used oil management.

## **9. Key Stakeholders**

There are a few key Stakeholders in the RMI concerning Used Oil:

- MEC
- RMI Environmental Protection Authority;
- KAJUR
- Office of Environmental Policy and Planning Coordination
- Private sector importer of bulk fuels: Pacific International Inc.

A list of the key stakeholder contact details is provided at Appendix I.

## Appendix I: Contact Details for Key Stakeholders

### Marshalls Energy Company

Chief Commercial Officer: Shem Livai

Emails: [shem.livai@mecrmi.net](mailto:shem.livai@mecrmi.net) ; [shem.livai@gmail.com](mailto:shem.livai@gmail.com)

tel: +692 625 8110

Chief Technical Officer: Steve Wakefield

Email: [swakefield@mecrmi.net](mailto:swakefield@mecrmi.net)

### KAJUR

General Manager: Romeo Alfred

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+692 455 3273 Majuro Cell

+692 235 3273 Ebeye Cell

+692 329 3799 Ebeye KAJUR Office

### RMI Environmental Protection Authority

General Manager: Moriana Phillip

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Tel: +692 625

### Pacific International Inc.

Managing Director: Jerry Kramer

Email:

Tel: +692 625 5316

### Pacific Direct Line (New Zealand)

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### Pacific Bulk Fuel

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