

**REPORT ON INTERNSHIP  
CONDUCTED WITH  
YAP STATE ENVIRONMENTAL PROTECTION AGENCY  
(FEDERATED STATES OF MICRONESIA)**

*by*

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*Submitted To*

**MARINE RESOURCE MANAGEMENT PROGRAM  
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degree of*

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Micronesia and South Pacific Program, University of Oregon  
from the U.S. Department of Interior  
Office of Territorial and International Affairs*

## EXECUTIVE SUMMARY

This internship was supported and funded by the Yap State Environmental Protection Agency (EPA), the United States Department of the Interior, Office of Territorial and International Affairs, and the University of Oregon Micronesia and South Pacific Technical Assistance Program. What follows in this report is a description of the internship that was undertaken between 17 June and 16 September, 1994 and the resulting document which was submitted to each of the funding organizations. This report, entitled Yap State Outer Island Environmental Survey & Draft Pesticide Regulations, is provided as Attachment A.

Yap State, one of the three Federated States of Micronesia, is undergoing dramatic influences which are rapidly transforming their traditional and subsistence oriented culture. Increased economic activities including the potential for development of commercial agricultural activities in Yap are believed to pose corresponding increases in health and environmental hazards. It was expressed that additional environmental regulations, including pesticide regulations, were required to reduce and control this potential for detrimental exposure to humans and their environment. Therefore, Yap EPA requested technical assistance through the University of Oregon's program. In addition to drafting pesticide regulations, the director of the Yap State EPA requested a survey of Yap's outer islands environmental concerns, primarily focusing on vessel grounding incidents and identification of hazardous material problems. This undertaking would address both his ongoing desire to assess environmental problems as perceived by the islanders themselves, as well as familiarize the outer islanders with the environmental agency. These islands are extremely remote and speak different languages (Woleai or Ulithi) than Yap proper (Yapese and English) which presents difficult logistical exchanges with the center of State government.

My brief exposure to the Yapese culture necessarily constrains the plausibility that my recommendations may actually be either beneficial or implementable. Therefore, they were merely offered for consideration only, not as a critique of what ought to happen. While it's very easy to enter a situation from the outside and offer different ideas on how "best" to address perceived problems, in truth, only minor adjustments may realistically be expected. Bearing in mind that my experience with the Yapese culture and environmental circumstances is limited, and that I maintain an inherent western developed nation bias, the following were general observation suggested to improve the overall functioning of the Yap State Environmental Protection Agency as a whole:

- \* *Establish a new position in EPA with the responsibility to draft environmental regulation, develop program plans, and conduct plan review.*
- \* *Delineate overlapping jurisdictions between the various agencies and departments to minimize confusion*
- \* *Institutionalize the Environmental Impact Assessment program as developed by the Federated States of Micronesia (FSM)*
- \* *Prioritize EPA's various missions and formalize through the Environmental Protection Board.*

There were nine areas of concern identified during the environmental survey of Yap State's outer islands. Brief recommendations on possible responses to these concerns were provided to the various appropriate governmental agencies. The survey is provided within Attachment A; Appendix I of this report. The areas of concern were as follows:

- \* *Vessel Groundings & Potential Oil Spills*
- \* *Island Chief's Role/Responsibilities for Incident Response*
- \* *Wreck/Structural Debris Removal*
- \* *Placement of Aids To Navigation*
- \* *Vessel Generated Pollution*
- \* *Potential PCB Contaminated Transformer Oil*
- \* *Hazardous Chemicals/Waste Oil*
- \* *Biological Disruptions*
- \* *Non-production Wells*

Pesticide regulations were also drafted since chemical pesticides pose a health risk to the general population and the environment if not properly managed. These regulations were designed to specifically protect human health and the environment through control of importation, certification of applicators, storage, handling, disposal, and record keeping requirements. These regulations were created to affect those public and private persons responsible for importation, distribution, storage, application, and disposal of pesticides.

Specifically exempt from the regulations were pesticides which are intended solely for distribution via retail outlets for private household use, and whose "Signal Word" on the label does not exceed "Caution" as an indicator of toxicity. Therefore, products like mosquito coils, aerosol insecticide sprays, and rodent baits are not subject to the same strict standards. If a determination is made that chemical pesticides are required to aid in the control of an identified pest, approval from the Environmental Protection Agency is required prior to importation. This way, justification for pesticide use must be established and the amount brought into the State may be monitored and if necessary, controlled. The draft regulations and the "Notice of Intent to Import Pesticides" form may also be found in Attachment A: Appendix II & III.

## **TABLE OF CONTENTS**

<b>Executive Summary</b>	<b>i</b>
<b>Table of Contents</b>	<b>iii</b>
<b>Introduction</b>	<b>1</b>
<b>Description of Activities</b>	<b>3</b>
<b>A. Workplan</b>	<b>3</b>
<b>B. Accomplishments</b>	<b>5</b>
<b>Conclusions</b>	
<b>A. Major Challenges</b>	<b>8</b>
<b>B. Closing Remarks</b>	<b>9</b>
<b>Attachment</b>	(Report submitted to Yap State Environmental Protection Agency; the US DOI, Office of Territorial and International Affairs; and the University of Oregon)
<b>A. Yap State Outer Island Environmental Survey     &amp; Draft Pesticide Regulations</b>	

## INTRODUCTION

The purpose of the University of Oregon's Micronesia and South Pacific Program is to provide grassroots assistance to the people of the western Pacific region at the specific request of their government. This program engages graduate students to serve as technical assistants who work directly on a needed projects with an identified individual from the agency. The program attempts to emphasizes the transfer of skills between the technical assistant and their specific Micronesian or South Pacific counterpart. In addition, this program also serves to provide graduate students the opportunity for increased cross-cultural understanding and international work experience.

The Federated States of Micronesia (FSM) is an independent nation created in 1986 from four islands (Chuuk, Kosrae, Pohnpei, and Yap) within the former United Nations Trust Territory of the Pacific Islands. Yap State is generally broken into Yap Proper, a complex of four tightly clustered islands (Yap, Rmung, Maap, and Tomil-Gagil) which are surrounded by an extensive fringing reef, and the Outer Islands (approximately 125 in number), which consist of four separate islands and twelve atoll assemblages. Yap proper has been formed by tectonic and volcanic processes along the eastern rim of the Philippine plate boundary and experiences a wet tropical climate (mean annual rainfall 300 cm), with a distinct dry season between April and May.<sup>1</sup>

The outer islanders, while politically Yapese, maintain varied cultural practices and speak different languages than Yap Proper. The population of the entire state of Yap was 11,121 in 1992 and was projected to reach 12,042 by the year 2000 in the Federated States of Micronesia's Second National Development Plan, 1992-1996. For the outer islands, the population is around 22% of this total population. Yap State islands are geographically spread out in the eastern Pacific ocean between 6.5<sup>0</sup> to 10.5<sup>0</sup> North Latitude and 137<sup>0</sup> to 148<sup>0</sup> East Longitude. According to the Federated States of Micronesia: Nationwide Environmental Management Strategies published in 1993, the Exclusive Economic Zone of the FSM incorporates over one million square miles of which only 271 square miles is made up of land areas.

It would be difficult to attempt to give all the flavor and nuances of Yapese culture I experienced and their differences as related to the more-developed nations within the scope of this report. I think it was best articulated by the contemporary musician, Joni Mitchell, when she wrote that "People will tell you where they've gone[.] They'll tell you where to go[.] But 'till you get there yourself you never really know".<sup>2</sup> Yap is definitely no exception to this insight. It has been claimed that first impressions are lasting, therefore, as a way of introduction to this unique Micronesian Island, I thought I would provide my first impression from notes I made following my first day in Yap.

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<sup>1</sup> Goldman, B., et al. *Yap State Marine Resources & Coastal Management Plan* Marine Resources Management Division, Department of Resources & Development, Yap State Government, Federated States of Micronesia. February, 1994. pg. 77.

<sup>2</sup> Mitchell, Joni. *Hejira*. Elektra/Asylum Records. Warner Communications Inc. New York, New York. 1976. Track 2 "Amelia".

*18 June 1994:*

The flight was a bit long, by the time it was all over I must have stayed up for 35-40 hours without any sleep. It was about 10:30 am local time on 17 June when I arrived here and was greeted at the airport after going through customs. There were three folks from the office I'll be working at who greeted me. The supervisor, Joe Xavier, Paul Beengin, and Aloysius Wag, who is to be my counterpart. I also briefly met Larry Vasquez from the University of Oregon Program working on another project with the planning department and who has been here for the last month or so. Lastly, I met the law student from Lewis and Clark Law School (Sam Edwards) working for the Attorney General's office who I'll be staying with temporarily. After quick hello's, we headed to the apartment to drop my things off.

Along the way from the airport we passed the lake/reservoir which supplies water to the capitol city Colonia where I'll be working. The air temperature is comfortable in the mid 80's, the air is wet with humidity, and there were several puffy cumulus cotton ball clouds drifting in the sky. Flying into Yap, I could see that the islands were predominantly low lying in elevation, although there were some hilly areas to the north, but not what I would term mountains. The landscape was covered with the tropical green type of vegetation one would expect in this region of the world. Mangroves occupy the majority of the margins between the land and the sea, which are themselves flanked by shallow reefs extending seaward for a fair amount before dropping off into the deep tropical blue Pacific waters. Nearing the largest town, Colonia, we passed various buildings, homes, a few stores (shacks that sell items over a counter), and one of the hotels. Not the Hilton mind you, a rectangular cinder block construction painted bright yellow and resembling a barracks type structure. Heading up a deeply rutted road off the paved track we arrived where I will be staying temporarily, the blue lagoon apartments. Nothing fancy, two bedroom apartment, meager furnishings but it would do.

After dropping off my stuff, we went to look at an oil spill leading into the harbor. A backhoe had dug a pit to try and find out the source of the oil leaking into the bay (who knows how long this has been going on). Sure enough, the pit filled up with oil so they have been pumping off the diesel like oil off the top of the water in the evening when fumes are less noxious. The suspected source may be a Mobil Oil line which is buried under the nearby road. There probably isn't another reasonable source unless there is an unknown buried tank somewhere. I suggested that they might try the use an auger drill to punch holes into the ground to try to determine the extent of the underground contamination, verses digging large crude pits with a backhoe since it would be simpler, quicker, and less disruptive. Joe seemed to like the idea and attempted to get public works to drill some holes using their telephone pole digger. It doesn't appear that this will happen until Monday. Our western ways of charging ahead with hustle and bustle does not appear to be the standard mode around here. I think that the usual western pace is amusing to the locals who, from what I've gathered so far, are not interested in standing out separate from the collective group. Every man in the office I've seen so far has spent more time preparing the beetlenut for chew than anything else. Reflection and contemplation are more in their eyes which are periodically interrupted occasionally with a good laugh.

They do seem to enjoy a good laugh. Not the cruel sort where the expense of another is seriously threatened but the simple in jest poking fun type. The office, a concrete structure situated on a hill side above the prison with tile floors, a few desks, tables, chairs, and a couple of computers faces out where you can see the Peace Corps Office. Joe was chuckling at one of the Peace Corps men volunteers wearing a "thus" (loincloth), which is the traditional dress of Yapese men. Although the Peace Corps workers are here for two years and live in the villages or on the outer islands, they are not Yapese, nor do I expect that the Yapese think they know what it is really like to be one. I think that the Yapese are curious why these foreigners would want to mimic them.

The betelnut is a small green fibrous seed pod, sort of looking like a super huge and stretched out acorn say 1 1/2 to 2 inches long. A green pepper-vine leaf is put in the palm of a hand, a betelnut either split with a knife if large and hard or with ones teeth if smaller and softer, is placed on the leaf, some limestone powder is sprinkled on the nut which is wrapped into the leaf. Then the wad, sometimes with some vodka spiked tobacco is put into the mouth and chewed. The limestone induces major salivation, and a blood red spit results along with a brief period of glassy eyes. I don't know what all I'll be able to accomplish here. Its premature for me to get an overall sense though after only being here for less than an entire day now.

## **DESCRIPTION OF ACTIVITIES**

### **A. WORKPLAN**

The first real order of business after aquatinting myself with the EPA staff, new office setting, and general island familiarization was to develop a workplan with my counterpart. An outline of the workplan we developed follows:

#### **I. Purpose:**

##### **A. Environmental Protection Agency Goal:**

Presently, former Trust Territory regulations (1980) apply throughout the FSM for control of pesticides. The Environmental Protection Agency would like to develop new regulations which could be expanded to include hazardous chemicals in order to ensure proper management of these materials. Institutionalization of procedures and responsible management and coordination of a hazardous material program may improve the control of hazardous chemicals thereby benefiting the general population and environment through less exposure due to spills and misuse. In addition, an environmental survey of the outer islands of Yap was desired to obtain input of their concerns.

##### **B. Skills to be transferred:**

- \* Hazard awareness
- \* Incident responder tactics
- \* Regulation development methodologies

C. Skills to be received:

- \* Understanding of how to work effectively in a cross cultural setting
- \* Understanding of pesticide and hazardous waste problems and issues facing Yap State.
- \* Understanding of how the Federated States of Micronesia, Yap State agencies, communities, and the private sector operate and interact.

II. Scope of Work:

- \* Conduct outer island survey of environmental problems
- \* Review and revise current pesticide regulations
- \* Establish administrative process with which to implement, monitor, and evaluate effectiveness of developed regulations.
- \* Development of In-house Pesticide Monitoring Program Guide

III. Participants:

Joe Xavier -	Director, Environmental Protection Agency. Yap, FSM
Aloysius Wag -	Environmental Protection Agency, Pesticide Control Tech
Tom Harrison -	Technical Assistant through University of Oregon Program

IV. Schedule: (Project Time Period 17 June - 16 September 1994)

- |          |   |
|----------|---|
| Week 1-2 | <ul style="list-style-type: none"><li>* Field Familiarity</li><li>* Identify Scope of Problem</li><li>* Develop Work Plan</li></ul> |
| Week 3-5 | <ul style="list-style-type: none"><li>* Conduct Outer Island Survey</li></ul>   |
| Week 6-7 | <ul style="list-style-type: none"><li>* Submit Outer Island Trip Report</li><li>* Review Existing Regulations</li></ul>             |
| Week 7-9 | <ul style="list-style-type: none"><li>* Develop First Draft of Regulations</li><li>* Circulate Regulations for Comment</li></ul>    |



- Week 10      \* Begin Development of In-house Program Monitoring Guide
- Week 11-13   \* Complete Development of In-house Program Monitoring Guide  
                  \* Develop Final Draft Proposal Regulations  
                  \* Finalize Final Project Report

V. Agency Project Cost Estimates:

Reference Material (budget for future procurement)	\$ 200.00
Auto/Fuel	\$ 50.00
Administrative Supplies	\$ 15.00
Printing Costs -(pesticide tracking form)	\$ 35.00
Telephone/Fax Costs	\$ 50.00
Film/Processing	\$ 35.00
Travel to Outer Islands (M/V Micro Spirit fare)	\$ 1,744.00
<u>Total:</u>	<u>\$ 2,129.00</u>

**B. ACCOMPLISHMENTS**

Our accomplishments and ability to meet the workplan goals and objectives we generated is summarized as follows:

**I. Project Goals & Objectives:**

a) Conduct outer island survey of environmental problems

We were able to accomplish this goal. A report was put together identifying problem areas and concerns witnessed and relayed to us for the varying isolated islands. The report was provided to the Environmental Protection Board, various government agencies, and the Council of Tamol who politically represent the outer islands.

Skills transferred during this phase of the project:

- \* *Vessel Structure, Layout, Operations, and Navigation Safety* - During the three weeks spent on the Motor Vessel Micro Spirit conducting the survey, I was able to point out where various parts of the ship were and how they were correlated (for example, how to identify where fuel and ballast tanks were, the general functions of emergency generators, fire suppression systems, fuel transferring, after steering, propulsion systems, and anchoring techniques and equipment).
- \* *Incident Response Tactics* - In the event of an incident involving a vessel, we discussed the various events that may take place, the importance of taking soundings of the tanks, transferring product out of damaged or threatened tanks, vessel salvage operations, and the types of positions and responsibilities of the captain and crew, and ship owners and operators.

- \* *Hazard Awareness* - I Identified that old transformers may contain PCBs which pose a threat to soil, groundwater, and individuals who may come in contact with spilled material. I noted specifically what the vessel that services the outer islands off loads to the islands, how it is transferred, and the hazards each presented (i.e. barrels of petroleum, transferring diesel, batteries, livestock, Clorox and other chemicals, and potential biological introductions). We also reviewed different types of vessel generated pollution and where they came from such as gray water verses sewage, ballast and bilge discharges, and the international ban of disposal of plastics at sea.
- \* *Hopefully, how to tactfully solicit information from the different island chiefs* - The routine for each of the 17 inhabited islands visited was to meet at the men's house, and after conducting other business, bring up and discuss environmental issues through an interpreter. There was a wealth of knowledge there to tap in only a short period with other competing issues and concerns to be addressed by the Field Trip Party. Each island in many respects had some similar types of problems, but they also had problems which varied greatly or were held at a different priority by the islanders.

b) Review and revise pesticide regulations

We were able to accomplish this task. A copy of the draft regulations is included as Appendix II within Attachment A.

Skills transferred during accomplishment of this aspect of the project:

- \* The majority of skill transferred during this phase of my stay amounted to developing the draft regulations and more specifically, the Notice of Intent to Import Pesticides Form. Essentially, this consisted of determining what information should be included and what information was unnecessary, who needed to complete what part and when, and the process which EPA would undertake when a form was submitted.
- \* We also discussed the various aspects of what was to be included, modified, or removed from the previous Trust Territory pesticide regulations. The skill being how to tackle a complex regulation systematically in small chunks. I don't know how successful I was in this endeavor. I would be extremely surprised if my counterpart was able to develop regulations, but I am quite sure that he can understand, apply, and enforce them.

c) Establish Process to Implement, Monitor, and Evaluate Pesticide Regulations & Develop In House Monitoring Program Guide

- \* We were unable to formally accomplish these tasks, however, we did discuss them to some degree. I don't have an example with which to measure success of a skill transfer. In all likelihood, since paperwork generally wasn't part of my counterparts responsibilities, the program guide is unlikely to be developed in the near future if at all.

d) Other Skills/Knowledge Transferred

- \* *Terrestrial Oil Spill Response* - Just prior to my arrival, an underground 8" fuel supply line had ruptured and saturated the soil, eventually leaching through the soil and reaching the bay where it was initially discovered. During the course of my stay, I was able to discuss practical methods for determining the extent, recovering product, and booming strategies with various EPA personnel.
- \* *Oil Transfer Procedures* - One of the functions of the EPA was to monitor fuel transfer and bunkering operations. I was able to attend some transfer operations and discuss some of the safety related activities that went on during transfers, and also some of the things to watch out for such as smoking, hoisting of a red flag by day and a red light at night, posting of signs, hose connections, and the need for alert watchmen with communication capabilities to secure operations quickly if necessary.
- \* *Hazard Awareness*
  - i) *Freight Ship Oil Spill Threat* - A Panamanian flagged log carrier (M/V Ocean Harmony) making its empty return from Korea to Papua New Guinea initially reported itself in distress and was reported to be leaking oil 180 miles offshore of Yap proper (8° 34.408' North by 140° 42.211' East between Sorol and Ulithi Atoll) by an over flying aircraft. A FSM 100' patrol boat 'FSM Micronesia' was dispatched to investigate the situation. The skipper off the Palaua (a former US Coast Guard 95' patrol boat now stationed in Yap), the Chief Mate and a engineer from the FSM patrol boat, a police officer, Joe Pagal from EPA, and an official from Marine Resources boarded the freight ship. The Ocean Harmony claimed they never hit a reef and only had main engine failure as well as developing leaks in two valve stems off the main sea chest, which caused flooding in the engine room which precipitated an SOS on their part. The main sea chest valves had been temporarily repaired and then the oily bilge water was pumped overboard, causing the oil reported by the pilot. Both their slop tank and another ballast tank were full, so they claimed they had nowhere else to pump it (although the ship's cargo holds were empty). Their vessel's parent company had been contacted and a tug was inroute from Guam to take them in tow. I recommended that the FSM have soundings taken of their fuel tanks, and upon requesting their oil record book, we were provided with excuses for not having it filled out. The crew was 3 Korean Officers and 17 Bangladesh. We saw no signs of oil around the ship and no above waterline indications of grounding and looked at the repairs to the lines coming from the sea chest. During this incident I was able to go over the types of information I did with my counterpart regarding vessel structure, operations, and pollution response as well as participate in questioning the captain and chief engineer.
  - ii) *Unknown Cylinders* - A report that some compressed gas cylinders had been discharged at the old Coast Guard generator building was received at the office. I was able to go with a couple of EPA personnel to investigate. I was able to show them how to determine that the 11 cylinders were part of an old CO<sub>2</sub> fire suppression system. This provided me the opportunity to discuss some basic elements of both carbon dioxide and general hazard awareness in a real situation.

- iii) *Ammonia Release* - A leak was reported to occur at the new fish processing plant when a system initiation check was being performed. The situation wasn't dangerous, however, it provided me with the opportunity to review chemical incident response tactics with my counterpart. In addition, it provided an example of how hazardous materials are used in may day to day operations and the need to be aware of where and what is present on the island.
- iv) *Repackaging of Department of Agriculture and Forestry Pesticides* - (see Attachment A; Appendix IV) Primarily, the skills transferred in this regard were provided by Dr. Harrington from the world health organization, however, I assisted with the hazard mitigation effort including how to develop a hazardous chemical cleanup workplan, site safety plan, and actually conduct a cleanup of hazardous material.

To be truthful, it was sometimes extremely difficult to determine what skills were actually transferred. I suspect that in many cases the skills were already there to begin with. Culturally, it is inappropriate for Yapese to boast their knowledge and my experience with the Yapese is that they will eagerly receive information as new, primarily to accommodate the person passing information, even when they are well versed with the subject matter.

#### *Skills Transferred to Me*

- \* Patience
- \* Value of Respecting the Cultural Customs
- \* Value of Being Prepared for Events to Unfold vice Initiating Actions Prematurely
- \* Ability to Limit Paperwork to Essentials Only, Relying More on Mutual Trust & Respect

## **CONCLUSIONS:**

### **A. MAJOR CHALLENGES**

When I attempted to get a feel for what my counterpart's input was regarding this question I couldn't get a verbal response. Aloysius Wag (27 years old) was a man of very few words. His highest level of education was graduation from Pohnpei Agriculture & Trade School (PATs) and is married with 1 daughter who was about 1.5 years old. He had been working for the Environmental Protection Agency for approximately 1.5 years and had never worked for the government before.

For myself, the major challenges I experienced in accomplishing the workplan goals were as follows:

- \* Having enough time to recognize and adapt to the way their culture handled situation.
- \* Establishing credibility in a culturally acceptable fashion.
- \* Compressing the ability to motivate completion of the workplan within the time frame that I was on the island. There is inherent and sincere motivation, however, it possess a different time and space reference than I am accustomed too.

## **B. CLOSING REMARKS**

The actual time spent on accomplishing workplan was approximately 20 hours per week for my counterpart, and approximately 25 hours per week for myself. There were dramatic fluctuations over the course of the three months depending on the occurrence of incidents and observance of cultural events. To appreciate how quickly things move, it's interesting to note that shallow testing holes delineating underground oil contamination were finally completed for the Mobil pipeline rupture shortly prior to my departure in mid September. A lot of what was accomplished was specifically not part of the identified project, however, it involved cultural exchange and skill transfer never-the-less.

Although the primary goal of the University of Oregon Micronesia and South Pacific program is to accomplish the stated project, I believe that the day to day interactions were probably more valuable to myself, my counterpart, and the agency over completion of the report itself. I can state for sure that this was the case for me personally. I learned more about relationships between programs and the people within the agency responsible for them than I did about pesticides. Hopefully some of the wisdom within their different ways rubbed off on me.

The completed report with acknowledgments that was provided to Yap State Environmental Protection Agency, the United States Department of the Interior, Office of Territorial and International Affairs, and the University of Oregon Micronesia and South Pacific Technical Assistance Program has been attached for review.

**YAP STATE OUTER ISLAND  
ENVIRONMENTAL SURVEY  
&  
DRAFT PESTICIDE REGULATIONS**

*Project Undertaken by:*

The Yap State Environmental Protection Agency  
Federated States of Micronesia

*Prepared and Submitted by:*

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Technical Assistant

September 1994

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Micronesia and South Pacific program, University of Oregon  
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Office of Territorial and International Affairs

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This project was supported and funded through the Yap State Environmental Protection Agency, the United States Department of the Interior, Office of Territorial and International Affairs, and the University of Oregon Micronesia and South Pacific Technical Assistance Program.

The following individuals are recognized for their invaluable insight demonstrated during the course of this project:

- \* The Director and Staff of the Environmental Protection Agency for their wisdom, intuition, and genuine desire to improve the quality of life for the people of Yap.
- \* The outer islanders for their hospitality and tolerance with yet another party of outsiders seeking information.
- \* Captain Single from the Sea Transportation Division of Yap State Public Utilities and Contracts for expediting the outer island survey and translation services.
- \* Dr. Lee Yudin of the University of Guam for his candid approach to the integrated pest management training he provided to both public and private Yapese interested in pesticide application.
- \* Dr. Wayne Harrington of the World Health Organization for his practical pesticide cleanup assistance with mitigating a potential health threat associated with agricultural pesticides.

*The University of Oregon Technical Assistance Program works with various government agencies in the three countries of Micronesia which now freely associate with the United States (Federated States of Micronesia, Republic of the Marshall Islands, and the Republic of Palau), and American Samoa in the South Pacific. The purpose of the program is to identify eligible projects, match a host country counterpart with a graduated student to exchange professional and technical skills, and provide a cross-cultural experience. The position for each project is approved for funding by the U.S. Dept of Interior, Office of Territorial and International Affairs.*

## **EXECUTIVE SUMMARY**

This project incorporated two primary tasks. The first task was to participate in a Yap State outer island field trip. This trip was undertaken to conduct an environmental survey of 17 isolated outer islands. The second item completed was the development of draft pesticide regulations to submit to the Environmental Protection Board for approval. In addition to these two primary projects, waste pesticides posing a contamination threat were repackaged and safely stowed at the Department of Agriculture and Forestry facility with assistance from the World Health Organization.

### **I. Outer Island Survey**

To identify Yap state outer island's environmental concerns and perspective, the Environmental Protection Agency sent two representatives to conduct an outer island environmental survey. The primary purpose was to evaluate impacts associated with vessels wrecking on reefs, and to see if there were any hazardous material or environmental problems being experienced which posed a threat to islander's health or the environment.

Nine areas of concern were identified and brief recommendations on possible responses to be taken were then provided. The Outer Islands Environmental Survey is attached as Appendix I of this report. The areas of concern identified are as follows:

- \* **VESSEL GROUNDINGS & POTENTIAL OIL SPILLS**
- \* **ISLAND CHIEF'S ROLE/RESPONSIBILITIES FOR INCIDENT RESPONSE**
- \* **WRECK/STRUCTURAL DEBRIS REMOVAL**
- \* **PLACEMENT OF AIDS TO NAVIGATION**
- \* **VESSEL GENERATED POLLUTION**
- \* **POTENTIAL PCB CONTAMINATED TRANSFORMER OIL**
- \* **HAZARDOUS CHEMICALS/WASTE OIL**
- \* **BIOLOGICAL DISRUPTIONS**
- \* **NON-PRODUCTION WELLS**

In addition, brief comments addressing concerns raised by the island chiefs are provided in the survey for various islands visited. Mention was also made to the islanders of a practical way to dispose of wet cell batteries as well as the value of using only minimal amounts of bleach and cleaning agents due to potential contamination problems.



## **II. Draft Pesticide Regulations**

Chemical pesticides pose a health risk to the general population and the environment if not properly managed. The draft regulations developed were designed to protect human health and the environment through control of importation, certification of applicators, storage, handling, disposal, and recordkeeping requirements. These regulations affect those public and private persons responsible for importation, distribution, storage, application, and disposal of pesticides.

Specifically exempt from the regulations were pesticides which are intended solely for distribution via retail outlets for private household use, and whose "Signal Word" on the label does not exceed "Caution" as an indicator of toxicity. Therefore, products like mosquito coils, aerosol insecticide sprays, and rodent baits are not subject the same strict standards.

If a determination is made that chemical pesticides are required to aid in the control of an identified pest, approval from the Environmental Protection Agency is required prior to importation. This way, justification for pesticide use must be established and the amount brought into the State may be monitored and if necessary, controlled. The draft regulations and "Notice of Intent to Import Pesticides" form are found in Appendix II & III respectively.

## **TABLE OF CONTENTS**

<b>Executive Summary</b>	<b>i</b>
<b>Table of Contents</b>	<b>iii</b>
<b>Introduction/Background</b>	<b>1</b>
<b>Methodology/Description of Activities</b>	<b>3</b>
<b>Recommendations</b>	<b>5</b>
<b>Appendixes</b>	
<b>I Outer Island Environmental Survey</b>	<b>7</b>
<b>General Comments</b>	<b>10</b>
<b>Concerns &amp; Recommendations</b>	<b>15</b>
<b>II Draft Pesticide Regulations</b>	<b>20</b>
<b>III Notice of Intent to Import Pesticide Form</b>	<b>34</b>
<b>IV Waste Pesticides Repackaged at the Department of Agriculture and Forestry</b>	<b>36</b>

## **INTRODUCTION / BACKGROUND**

### **I Outer Island Environmental Survey**

The Yap State Environmental Protection Agency is charged with protecting the health and well being of the people of Yap. The state of Yap is comprised of Yap proper, twelve atolls, and four single islands stretching across almost 600 miles of the Pacific Ocean. Although the outer islanders are geographically and politically Yapese, their culture and languages are distinctly varied in many respects. Recent incidents involving large freight vessels have threatened some of these remote tropical ecosystems which supports the subsistence lifestyle of the local inhabitants. In addition, some areas have experienced smaller fishing vessels impacting the reefs.

The Director of the EPA wished to survey the islands to provide them an opportunity to express concerns that they may have regarding these incidents. It also afforded the opportunity to pass some general information regarding chemicals, primarily wet cell batteries and household chemicals, as well as identify any other potential problems.

The survey was conducted in association with the Motor Vessel Micro Spirit's servicing trip which transports passengers, provides construction and food supplies, fuel, and collects copra. After conducting the various field trip party transactions in the men's house, discussions were held between EPA representatives and the island chief or his representative. Following discussions in the men's house, each of the islands welcomed us to walk around, make observations, and return to relay any concerns that we may notice.

### **II Draft Pesticide Regulations**

Presently, former Trust Territory regulations (1980) apply throughout the Federated States of Micronesia for control of pesticides. In practice, these regulations are no longer applicable in many instances and not generally followed. The recent State Environmental Protection Act authorizes Yap State Environmental Protection Agency to monitor and control the use of pesticides through the promulgation of regulations.

The draft regulations are designed to protect human health and the environment through control of importation, certification of applicators, storage, handling, disposal, and recordkeeping requirements. In addition, unlawful acts are specified as well as provisions for enforcement. Regulations affect those public and private persons responsible for importation, distribution, storage, application, and disposal of pesticides. Exempt from the regulations are pesticides which are specifically intended solely for distribution via retail outlets, and whose Signal Word on the label does not exceed "Caution" as an indicator of toxicity.

The regulations require that the first step one should take when faced with a potential pest problem is to identify the specific pest and apply Integrated Pest Management strategies to resolve the problem. If, however, chemical pesticides are required to aid in the control of an identified pest, certain activities must be undertaken. If importation is required, a Notice of Intent to Import Pesticides form must be completed, submitted to EPA for authorization, and approved prior to actually placing an order for pesticides. Unauthorized shipments

discovered may be confiscated, impounded, or ordered disposed of at the expense of the person responsible for its arrival.

After approval is obtained and an order made for importation, once a shipment arrives in the state, the EPA must be notified that the shipment has arrived. The EPA must be given the opportunity to inspect the shipment after which it may be released, detained, denied, or impounded depending on the circumstances surrounding its arrival.

Pesticides arriving in the state must meet specific label and labeling requirements. They must be clearly legible and printed in Yapanese or the English language. To minimize potential threats to human health and the environment, management practices ensuring safe pesticide storage, handling, and disposal are delineated.

Depending on the type of pesticide involved, its intended use, who applies it, and where it is to be applied, various recordkeeping is required on the part of persons responsible for its storage and use. Persons who maintain and store pesticides for commercial application, and those who maintain and store restricted use pesticides for private application, are required to keep an updated inventory with specific information every 3 months.

For instances where commercial application of general or restricted use pesticides occur, and where private application of restricted use pesticides occur, records containing relevant site, application, and weather information is mandatory.

Yap State EPA is responsible for certification of commercial and private applicators. A commercial applicator uses or directly supervises the use of general or restricted use pesticides on any property other than their own or rented by themselves. This includes government workers who apply pesticides. Private applicators use or directly supervise the use of restricted use pesticides on property owned or rented by themselves.

Persons desiring either private or commercial certification must apply to the EPA in writing. Certification is based on demonstrated competency to the EPA by the applicant and certifications are valid for two years. There are also provisions for temporary private and commercial certification up to ninety (90) days for exceptional circumstances. Certification may be denied, suspended or revoked for violation of certificate conditions, the commission of any unlawful act, or breach of regulatory provisions.

EPA representatives upon a perceived threat to human health and the environment, and for purposes of seeking compliance, monitoring, and enforcing provisions of the regulations have rights of entry. Following discovery of regulatory violations, pesticides may be seized or condemned by the EPA. The EPA may also issue written orders to direct whatever action deemed appropriate to protect human health and the environment. This may include orders such as, ceasing actions, activities, or operations, mitigating a situation, properly disposing of pesticides, and or conducting complete pesticide contamination or pollution clean up activities.

### **III Repackaging of Pesticide Wastes**

The Environmental Protection Agency had previously been in contact with the World Health Organization, Western Pacific Regional Environmental Health Centre to assist in dealing with pesticide wastes on the island. Dr. Wayne Harrington, a chemical safety specialist, was sent to provide some basic hands on training in pesticide clean up

operations. Culmination of his visit was the repackaging of spilled and indiscriminately stored pesticides.

Since the island does not have the proper protective clothing and respirators required to accomplish the task, Dr. Harrington brought the material for use on the island. Environmental Protection Agency personnel conducted a one day repackaging operation at the State of Yap Department of Agriculture and Forestry facility.

## **METHODOLOGY/DESCRIPTION OF ACTIVITIES**

### **I Outer Island Environmental Survey**

Yap State EPA representative Aloysius Wag and University of Oregon Technical Assistant Tom Harrison conducted a survey of Yap State outer islands for EPA to ascertain local environmental concerns. The survey was conducted in association with the Motor Vessel Micro Spirit's outer island servicing trip which transported passengers, provided construction and food supplies, fuel, and collected copra. Both EPA representatives accompanied the Field Trip Officer (FTO) visits to each of the 17 inhabited islands over the course of the vessel's supply run. After our discussions in the men's house, each of the island chiefs or their representative welcomed us to walk around, make observations, and return to relay any concerns that we may notice.

In general, during discussions we passed to most of the islands that the wet cell batteries commonly found on the islands contained sulfuric acid which could cause burns to individuals skin and harm the environment if not properly disposed of. This acid could easily be neutralized by carefully pouring off the liquid into a plastic container, adding crushed coral, then waiting for the reaction (bubbling/fizzing) to stop. The neutralized liquid could then be taken out to sea away from the shore and surrounding reefs and then disposed of, preferably on an outgoing tide. We also mentioned that if the lead was being melted for other uses such as fishing sinkers, harmful metals which often reside in the batteries, may be present. The fumes generated during the melting process could be very dangerous and should be avoided.

We also noted that clorox bleach can be harmful to ground water sources, coral, and the aquatic environment. In addition, we passed that less than full strength clorox was all that was usually necessary. For clothing, this would increase the life of the material, pose less impact on the environment, as well as save money since it would last longer.

Many of the outer islands seemed receptive to the idea we presented of storing limited amounts of sorbent material to facilitate clean up of should minor spill incidents occur. An interesting point that became apparent while conducting the survey was the fact that many outsiders visit the islands to collect information (sometimes what appears to have been already previously obtained), but the islanders don't generally ever see what comes of their visit.

It is important to keep in mind that the recommendations we presented in the report were cursory and not all inclusive. It is also possible that efforts addressing problems identified during this survey may already be underway.

## **II Draft Pesticide Regulations**

The starting point for drafting the pesticide regulations was reviewing the former Trust Territory regulations adopted back in 1980. When the Trust Territory regulations were promulgated, it was the Division of Health Services not an environmental agency that was identified as the responsible agency for enforcing the regulations. After reviewing the regulations, the valuable sections were modified to reflect current regulatory preferences. In addition, desirable requirements that were missing were included.

The crux of the major revisions to the regulation is that persons intending to import regulated pesticides are required to obtain EPA approval before bringing them into the state. This will provide EPA the opportunity to ensure that only the right chemicals for the job in the quantities necessary enter the state. This should significantly reduce any future build up of hazardous waste pesticides which present both potential hazards as well as being a difficult disposal problem. In addition, storage, handling, disposal, and labeling requirements that were previously absent now will allow EPA to closely monitor pesticides that do enter the state. When it is determined necessary, regulations should be available to rectify problems encountered and safeguard human health and the environment.

The fortuitous timing of Dr. Lee Yudin's (University of Guam) visit to the island to conduct private pesticide application training, and also Dr Harrington's (World Health Organization) with his assistance in removing the threat posed by pesticides, both provided major insights. The combination of these two educational events afforded a more holistic perspective with which to view what was needed to effectively control pesticides. In addition, their visits helped to identify what were realistic expectations, and what were unnecessarily burdensome for those involved with pesticides.

Dr. Yudin provided four days of private pesticide application instruction to 28 private and government individuals. Participants interested in obtaining private pesticide application certification from the Guam Environmental Protection Agency took the required examination.

Presently, the draft regulations will be brought up as a new item at the next Environmental Protection Board's meeting. If the regulations meet their approval, the next step will be to publish them for public review and comment. After all necessary revisions are made, the regulations will be set to go into effect after the required waiting period of 30 days.

## **III Repackaging of Pesticide Wastes**

Cleanup operations at the Department of Agriculture and Forestry (DAF) facility was initiated with a survey of the site. Items noticed were things such as access, power, ventilation, general conditions, structure layout, and potential contamination pathways. Next, a workplan was conceived, which basically amounted to a consensus of what it was that would be accomplished, how would it be done, and who would do it. It was determined that all pesticides that were not wanted by the DAF, spilled, improperly packaged, or in containers that were not in good condition would be drummed up, set off the floor, labeled, and isolated from other material stored in the maintenance storeroom.

Following that, time was spent discussing hazards associated with the chemicals, planned operations, and heat stress. Given the temperature and the fact that protective clothing does not allow skin surfaces to breath, heat stress was a major concern. With the information gathered, a site safety plan was put together. Due to the inhalation hazards associated with

the toxic chemical pesticides, individuals who were going to enter the "hot zone" had to be qualitatively fit-tested with the respirators that they would be using.

The actual clean up activities were completed quickly. However, setting up the decontamination area, the process of donning protective clothing, taking mandatory breaks, and decontamination of individuals and equipment after exiting the "hot zone" stretched the operation over the better part of a day. The inventory of pesticides that were repackaged are provided as Appendix IV.

## R E C O M M E N D A T I O N S

My brief stay in the state of Yap limits the scope of my recommendations and indeed, they require some more research before being taken seriously. It's very easy to sit back, and from the outside and drop in new ideas on how "best" to correct perceived problems. It's like going to an auto repair shop and encountering the "parts replacement" approach, whereby new parts are exchanged for old until a problem is resolved. In fact, the problem may actually never be identified in the costly process. Often, in truth, only a minor adjustment needs to be made by an experienced mechanic. Fine tuning was all that was ever really required, not wholesale replacement.

Bearing in mind that my mechanical experience with the Yapese culture is limited, the following are my general recommendations:

1. For the concerns identified during the Outer Island Environmental Survey, recommendations are provided as part of that report and may be found in Appendix I.
2. **Establish a new position in EPA with the responsibility to draft environmental regulation, develop plans, and conduct plan review.**

Individual positions currently held by the agency are not hired to accomplish these important tasks. They do they have background, experience, and it is unrealistic that should they be expected to accomplish such. With the newly passed law providing the EPA with the authority to draft regulations the agency is sorely in the position of needing many comprehensive regulations to carry out their numerous responsibilities.

3. **Distinction between the various agencies and departments with overlapping jurisdiction should be delineated.**

It appears to me that distinct responsibilities need to be defined between Marine Resources, the Sanitation Department, Planning and Budgeting, and Public Utilities and Contracts. Activities would be better coordinated, situations would be less likely to fall between the cracks, and duplication of efforts would be minimized.

4. **Institutionalization of the Environmental Impact Assessment program developed by the FSM should take place.**

Coordination of the various agencies reviewing development through a clearing house type process would greatly enhance accomplishment of recommendation number three.

**5. Prioritization of EPA's missions should be established, then formalized by the Environmental Protection Board.**

This would help the agency to continue to address the most urgent services as perceived by the people they serve. It could also aid the EPA with future budget request and allow for focused efforts. The EPA encompasses a wide variety of far reaching activities. It is impossible to expect them to handle each and every aspect of environmental protection with the resources available. Developing and defining what the specific prioritized missions are which would serve to spotlight the most pressing matters.



## **APPENDIX I**

# **OUTER ISLANDS ENVIRONMENTAL SURVEY**

JULY 1994

Yap State Environmental Protection Agency (EPA) representative Aloysius Wag and University of Oregon Technical Assistant Thomas Harrison conducted a survey of Yap State outer islands for the Director of the EPA to ascertain local environmental concerns. The primary purpose of the visits was to see if there was any expressed anxiety with vessels wrecking and impacting their reefs, and to see if there were any hazardous material or environmental problems being experienced on the islands. After conducting discussions in the men's house, each of the island chiefs welcomed us to walk around, make observations, and return to relay any concerns that we may notice.

The survey was conducted in association with the Motor Vessel Micro Spirit outer island servicing trip which transported passengers, provided construction and food supplies, fuel, and collected copra. Both EPA representatives accompanied the Field Trip Officer (FTO) visits to each of the 17 inhabited islands over the course of the vessels supply run. The field trip party consisted of a representative from the Public Utilities and Contracts (PU&C) Department assisting the FTO and inspecting radios, a representative from Wabb Transportation collecting copra, representatives from the Yap Community Action Program (CAP) inspecting water catchment structures, a medical officer, and a PhD student from the University of Hawaii conducting genetic research.

In general, we passed to most of the islands that the wet cell batteries commonly found on the islands (12 volt car and marine type) contained sulfuric acid which could cause burns to individuals skin and harm the environment. This acid could easily be neutralized by carefully pouring off the liquid into a plastic container, adding crushed coral, then waiting for the reaction (bubbling/fizzing) to stop. The neutralized liquid could then be taken out to sea and disposed of, preferably on an outgoing tide. We also mentioned that if the lead was being melted for other uses such as fishing sinkers, harmful metals which often reside in the batteries may be present. The fumes generated during the melting process could be very dangerous and should be avoided. It was also passed that clorox bleach can be harmful to the coral and the aquatic environment. In addition we mentioned that, generally speaking, less than full strength clorox was all that was usually necessary. For clothing, this would increase the life of the material, pose less impact on the environment, as well as save money since it would last longer.

Attached are some general comments regarding each of the islands visited. In addition, recommendations regarding some of the concerns expressed and found during the outer island field trip are provided. Of particular note is that many of the outer islands seemed receptive to the idea of storing limited amounts of sorbent material to facilitate their clean up of minor spill incidents. Another point that became apparent while making the trip was the fact that many outsiders visit the islands to collect information (sometimes what appears to have been previously obtained), but the islanders don't generally ever see any results. The recommendations presented are cursory and not all inclusive. They should not be taken to represent Yap State's Environmental Protection Agencies official position regarding any of the identified issues. It is possible that efforts addressing problems identified during this survey are already underway. If this is the case, please disregard recommendations.

In conclusion, we would like to extend our appreciation for of the courtesies and the assistance we received from the FTO, the assistant FTO, and the ship's crew for their attention to our needs and small boat requirements while conducting this outer island survey. We could not have accomplished it without their help or professionalism. We also concur with the concerns identified and specifically expressed in the FTO's trip report for this voyage.

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Aloysius Wag

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Tom Harrison

Enclosures:   (1) General Island Comments  
                  (2) Concerns and Recommendations

Copies:       Chairman, Council of Tamol  
                  Chairman, State EPA Board  
                  Director, Planning & Budget  
                  Director, Yap State PU&C  
                  Chief, Marine Resources  
                  Chief, Sea Transportation Division

## GENERAL ISLAND COMMENTS

### NGULU: (02 July)

The chief expressed concern over 2 exposed wrecked vessels. He was very interested in having them removed. He also mentioned that someone from Australia previously visited the island looking at scrap metal for possible removal and was wondering if anything was happening regarding the debris removal.

### ULITHI ATOLL

#### **FATHIRAY:** (03 July)

There was one grounded fiberglass vessel on the shore of the island. The chief did not express concern with impacts associated with vessel groundings in his area. He did mention that when islanders attempted to cut up the vessel, they experienced itching produced from the fiberglass dust, after which they wisely ceased.

#### **MOGMOG:** (03 July)

Of primary concern were the 2 highly eroded barges (approx 40') intentionally grounded during WWII to serve as docks. These were reported to pose a risk to children playing on the structures as well as altering the shoreline because of the influence on beach deposition and erosion. The barges have only the internal framing remaining, the plate being totally wasted away. We also accompanied Yap CAP personnel to a nearby island on which one family lived, however, they were not around. There was also one barge in similar condition on this island.

#### **ISOR:** (03 July)

This island also had a similarly wasted barge along the shoreline. This barge was also severely influencing shoreline deposition and resulting in substantial erosion along the shore due to the strong current present in the area. The chief also expressed concern about a couple of nonproduction wells. These wells were presumably installed to conduct aquifer research, possibly to determine the fresh versus salt water levels. Apparently some other islands were also included in this study. The chief's concern was that they may become the avenue for salt water penetration into the fresh water table destroying the taro patch bogs and vegetation in general.

Of final note, the chief would very much like to see that an aid to navigation light marking the reef near where an exposed part of a WWII wreck which is exposed be installed for safety. A dayboard type aid was not thought to be sufficient since it would also pose a nighttime hazard to the locals as does the exposed portion of the wreck.

**FALALOP: (04 July)**

The primary concern at this island was the occurrence of some reef fish being poisonous (causing neurological type illness manifestations such as dizziness) when eaten to various degrees. They were very interested in seeing if the government can come up with a way to test the fish to see if they are in some way toxic. The islanders felt that there may be a connection between all the WWII debris disposed of the lagoon. They also mentioned that there was a lot of pesticides used by the military during WWII to rid the island of insects. This island also has an airport which was reported to be capable of handling C-130 aircraft. This island may be a good logistic support base for moving heavy equipment in the event the need arises for the Ulithi area.

There is an electrical distribution system on this island, the possibility of PCB contaminated transformer oil exists here. We discussed the possibility of PCBs in the transformer oil and that the oil should not be allowed to spill on the ground plus the possibility of cross contamination of PCBs should the oil of an old transformer be used in a newer one.

**FIAS: (05 July)**

This island also has an air strip able to accommodate the twin prop PMA (Pacific Missionary Aviation) small commuter plane but not aircraft as large as a C-130. This island supports a fairly large population and phosphate was once mined here. There was an exposed WWII aircraft prop in the water. There did not seem to be a great deal of concern with vessels grounding in the area.

**SOROL: (06 July)**

This island is completely surrounded by reef without an entrance channel. There were only 16 individuals living on this island. There was one grounding of a fishing vessels but no oil was reported to reach the shore. Few ships were reported to pass by within sight of the island. The chief was not particularly concerned with vessels grounding in the area. It should be noted that an empty log carrying freighter did experience propulsion problems and some engine room flooding late last month approximately 36 miles NW of the island. The vessel OCEAN HARMONY of Panamanian registry initially sent out a distress signal and pumped oily bilge water overboard, serving notice that the threat does exist in the region.

**EAURIPIK: (07 July)**

There were 3 submerged and 3 exposed fishing vessels, and 2 freight vessel wrecks (one which was reported to leak during times of heavy weather) around this location. It was reported that Marine Resources had dove on the periodically leaking wreck in the past. Wrecked vessels were obviously a concern here due to their frequency. On the return trip visit to the island by the Micro Spirit, an unsuccessful attempt was made to see the wreck. This was due to the depth of the vessel and no oil was observed in the area.

**WOLEAI ATOLL****SELIAP: (08 July)**

The chief indicated that there were no grounding problems experienced at this location. Approximately 100 people lived on this island.

**WOTTAGAI: (08 July)**

There was one vessel that wrecked here about 20 years ago. There were also approximately 100 people that also lived on this island.

**FALALUS: (08 July)**

There weren't any vessel groundings remembered at this location. The island also had a policy that visiting ships were not to dump any rubbish near their island. The chief indicated that they didn't have any environmental concerns to pass on to EPA.

**TAGUILAP: (09 July)**

The primary environmental concern on this island was with a particular starfish increasingly killing off portions of the reef. They indicated that there was a project (possibly the navy) in which this species of starfish was collected and destroyed around 10 years ago, however, the problem has resurfaced again. They were also interested in reducing the numbers of flies and mosquitos which seemed to be increasing. It was also passed that there was also 1 fishing boat that sank with the release of some oil approximately 18 years ago.

**FALALOP: (09 July)**

This island had a airstrip that could accommodate a C-130 aircraft. This airstrip is sometimes unusable due to flooding across the runway which follows heavy rains. There was also electrical generation on this island with approximately 12 transformers in use on poles along the distribution system. Public Works also had 14 old transformers placed upright along a concrete pad surrounding a building which are fairly well sheltered. As with Falalop Ulithi, we discussed the possibility of PCBs in the transformer oil and that the oil should not be allowed to spill on the ground plus the possibility of cross contamination of PCBs should the oil of an old transformer be used in a newer one.

On the return trip stop over at this island, the Micro Spirit offloaded approx 6,000 gallons of diesel. The quantity of fuel offloaded for the island's generator varies, however, the method utilized is similar each visit. Diesel is pumped from the ships internal tanks to two containers (approx 300 gal each) placed in the vessels small boat launch. The launch then transports the containers filled with diesel near the shore where a small pump placed on the shore with sections of 2-1/2" hose are used to transfer the product into one of the two above ground tanks just back from the beach front.

**IFALIK:** (10 July)

Mention was made that 1 fishing vessel grounded around 5 years past in which the crew pumped off the oil and refloated the vessel and then took the vessel off the reef. They didn't express significant concern with vessels grounding on the reef. This island also reported to be experiencing a starfish problem impacting their reef. In addition, they were concerned with the relatively new phenomenon of black ground worms being found on the island and in the taro patches, especially after a hard rain. Of note is that outboards are prohibited on the island and travel on the water is restricted to canoes. Trolling and spearing for fish is also prohibited here. The Micro Spirit is allowed to use outboards to transport passengers and supplies.

**FARAULEP ATOLL****FSHAIULAP & PIIG:** (11 July)

For this atoll, there were 3 grounded fishing vessels (2 metal and 1 fiberglass). Both of these islands expressed the concern that when typhoons and storms come through, the vessels are forced along the reef inflicting additional damage to the reef. They would very much like to see the wrecks removed to stop this process. It was also passed that they have raised this problem to government officials in the past and have seen no action taken to date.

**SATAWAL:** (12 July)

This island recently (spring '94) experience the grounding of a coal carrying freight ship. There was also a fishing vessel that grounded approximately 10 years ago. The island chief indicated that he felt that the recent incident was beyond his control. His primary environmental concern seemed to be that incidents such as this may occur in the future. This island supported approximately 600 people.

**LAMOTREK:** (13 July)

There were 2 fishing boats grounded in the region. A large fiberglass vessel grounded during the Typhoon Owen. One of them was pumped off according to the FTO. There were no other significant environmental problems observed on this island.

**ELATO:** (14 July)

Of note for this island was the mooring arrangements for the M/V Micro Spirit. Formerly, the vessel anchored in the lagoon. Since this practice was damaging the coral, the vessel now gently noses the bow on the shore intentionally grounding a small portion of the forward section of the keel. Stern lines are then secured to coconut trees on the shoreline. The ship also takes on water via fire hose and a small portable pump from one of two water catchment structures located near the shore where the vessel moors.

The large fiberglass vessel mentioned at Lamotrek is also observable from this island and was reported as the only grounded vessel in the area. The starfish problem experienced on some of the other islands was not indicated as occurring at this location.



## CONCERNS AND RECOMMENDATIONS

### 1. VESSEL GROUNDINGS & POTENTIAL OIL SPILLS:

#### *Problem:*

Over the years, numerous groundings of fishing vessels and a few freight ships has resulted in oil spills within these remote regions. By the time an incident response could be mustered, the oil has already been released. Another more frequent threat posed to the outer islands occurs during delivery of 55 gallon drums of gasoline and also the transfer of diesel from ship to shore. Since the barrels of gas are deposited in the water and rolled up the shore manually, they may become punctured and develop leaks. During the transfer of diesel, container overfill or hose and hose connection failure may also result in the release of petroleum products.

#### *Recommendation:*

- \* That sorbent material appropriate to clean up the type of minor spills (motor oil, diesel and gasoline) that may impact islands be procured and delivered, along with basic training on how to safely use and dispose of recovered product, for each island.
- \* The M/V Micro Spirit should maintain appropriate quantities of sorbent material to handle spills that may occur during fuel transfer operations. In addition, some resupply sorbent kits should be carried on the vessel to quickly provide to outer islands should they deplete theirs for a response.

### 2. ISLAND CHIEF'S ROLE/RESPONSIBILITIES FOR INCIDENT RESPONSE:

#### *Problem:*

During the recent grounding incident with the coal carrying freight ship OCEANUS near Satawal, the chief expressed concern that things were beyond his control regarding salvage operations. He did not feel that he had the ability to stop operations that appeared to be negatively impacting the island and associated reef environment. It should be noted that the EPA representative on-scene was able to halt operations until the salver took action to minimize spillage of coal into the water during coal lightening activities.

#### *Recommendation:*

- \* Basic training regarding vessel salvage operations be provided to as many islanders as possible for the islands that are near shipping lanes, to make them aware of the activities that may occur following an incident. Training should include who the involved parties are and what function they perform, as well as basic salvage options. These would include transfer of fuel from damaged tanks, lightening of cargo to reduce vessel displacement, and refloating options such as pulling and winching tactics.
- \* Authority to immediately halt salvage operations should be provided to the island chief or designated representative in his absence.

### **3. WRECK/STRUCTURAL DEBRIS REMOVAL:**

#### ***Problem:***

As identified in the final section of this report under each specific island, removal of wrecked vessels which migrate during storms damaging additional coral is strongly desired. Of additional concern expressed during the visit was the influence created on the shoreline due to WWII barges positioned perpendicular to the shore causing disruptions to natural erosion and deposition processes.

#### ***Recommendation:***

- \* Develop a prioritized plan to remove metal and fiberglass wrecks continuing to damage reefs.
- \* Acquire necessary equipment (e.g. underwater cutting torch, chainsaw, and personnel protective equipment) to cut up the debris into smaller manageable pieces for disposal then initiate removal.
- \* Study shoreline influence from WWII barges and develop an appropriate response allowing the natural succession to control shoreline deposition. Perhaps the most practical method for removal would be to sever the metal structure at the sea/substrate interface, thereby not disrupting the intertidal area, then scuttling the waste metal well outside of the reef. As suggested by the islanders, it might be advisable to try out a small portion of the outboard end of the barge and observe the natural response.

### **4. PLACEMENT OF AID TO NAVIGATION:**

#### ***Problem:***

On the island of Isor, the chief was extremely interested in having a navigation "light" marking the reef installed (see section on Isor). This brings up the question, could possible aids to navigation safety improvements be made for the outer islands which may reduce vessel groundings.

#### ***Recommendation:***

- \* Record and track past and future vessel grounding incidents to monitor their occurrence, location, and causal factors. Analyze data to see if a pattern emerges.
- \* Conduct study of existing navigation markers and compare with information generated above to see if improvements can be made. If so, identified improvements to be pursued should be prioritized.
- \* Consider requiring vessels that transit within territorial waters have updated navigation charts of the regions being transited, as well as specific navigation safety equipment in good working order (e.g. radar, loran/sat nav/GPS, depth-sounding equipment, radios)

## **5. VESSEL GENERATED POLLUTION:**

### ***Problem:***

Plastic and other miscellaneous rubbish was observed to be tossed overboard as a matter of routine. Frequently this occurred in close proximity to the islands being serviced. Undoubtably, this material reaches the shore and presents a threat to the island reefs and surrounding waters. Under Yap State law number 3-73 provides EPA with authority to enforce pollution violations impacting land, air, and water. Specific regulations addressing water pollution are not presently in existence. International agreements such as the prevention of pollution from ships (MARPOL) prohibit the discharge of plastic in all waters.

### ***Recommendation:***

- \* Develop regulation and enforcement provisions addressing disposal of ship generated wastes from vessels in line with international marine pollution (MARPOL) agreements.
- \* Provide State operated vessels with the means for storage/disposal of ship generated waste with specific guidance for where and what type of refuse may be disposed of at sea.
- \* In addition, regulations regarding holding tank and grey water discharges within coastal waters need to be developed and adhered to.

## **6. POTENTIAL PCB CONTAMINATED TRANSFORMER OIL:**

### ***Problem:***

The few outer islands with centralized electrical distribution systems may have old transformers that contain PCBs, a suspected carcinogen. It is also possible that newer transformers may also become contaminated if old contaminated oil has been utilized as a substitute at some point in time. Since PCBs have no longer been used in transformer oil since 1973, the problem may not exist. However, we believe that the potential threat should be investigated and dealt with if necessary.

### ***Recommendation:***

- \* Old transformers no longer in use should be inspected to see if they contain oil. Remaining oil could be field tested to see if it potentially contains PCBs. Oil that appears to be contaminated with the field test should be sampled and have results verified since field tests sometimes produce a false positive. If determined to be contaminated, the oil should be collected and transformers triple rinsed with kerosene. The contaminated oil should then be taken off island and shipped to an approved storage, treatment and disposal facility.
- \* During the outer island survey, islands with transformers were notified of the potential problem. Islanders were ask to ensure that if transformer leaks were to occur, they should be immediately secured. If oil spilled onto the ground, it could pose a threat to anyone coming into contact with the material and the groundwater.

## 7. HAZARDOUS CHEMICALS/WASTE OIL:

### *Problem:*

Although this was not specifically expressed as a significant problem at this point in time, the potential for reaching a problem state in the future does exist. Varying amounts of waste batteries, household insecticide products, and bleach, as well as waste oil from generators, outboard motors, and a few vehicles was observed.

### *Recommendation:*

- \* Continue to solicit input from outer islands identifying the problems as they occur.
- \* Provide information and practical solutions to hazardous chemicals/waste oil disposal problems encountered on the outer islands.

## 8. BIOLOGICAL DISRUPTIONS:

*Problem:* There were three biologically related concerns expressed during the island survey and are as follows:

- a) Poisonous Fish - Certain fish when eaten within the Ulithi atoll have made individuals ill. This has occurred to the point where some areas have been historically avoided for fishing. The islanders were interested to see if the government could come up with a quick and easy detection method whereby they could determine if indeed, caught fish were or were not poisonous. Possibly a toxic plankton similar to the ones responsible for the paralytic shellfish poisoning (red tide) found on the west coast of the United States is involved.
- b) Starfish Impacting Reef - It was reported at Taguilap, Woleai and Ifalik that they were experiencing a population increase of a certain starfish that were overtaking and killing portions of the reef. Apparently, this phenomenon occurred around 10 years ago and measures whereby the starfish were physically collected and removed had been undertaken to alleviate the problem.
- c) Disturbing Pests (insects and black worm) - Some of the islands had noticed an increase in the number of nuisance flies and mosquitos. They were interested in possibly taking necessary measures to reduce their abundance. Ifalik described a black ground worm that was being found on the island that hadn't previously been noticed.

### *Recommendation:*

- a) \* That the source of the toxin in the fish and its biological implications be identified. If an easy way to determine if caught fish carry the toxin is available, it should be provided to the impacted islands.
- \* Develop proper preventative measures to safeguard islanders health and pass all relevant information to the islands with appropriate monitoring of the situation.

- b) \* Depending on the historical success in dealing with the problem, a study of the extent of the problem, or effective measures to reduce the starfishes impacts should be undertaken. Since this problem has been addressed in the past, if successful control measures were historically employed, it may only be a matter of implementing them again. If attempts met with limited or negative results, perhaps the causal factors creating the situation needs to be revisited.
- c) \* An information package describing the practical sanitary steps necessary for the islands to reduce their insect problem should be made available. A natural predator for the black worm, which is also present on Yap proper, could possibly help reduce the problem. We would not recommend the use of pesticides until all other biological and cultural methods have been exhausted.

#### **9. NON-PRODUCTION WELLS:**

**Problem:** On the island of Isor, it was pointed out that there were a couple of wells installed on the island for some study undertaken within the last couple years. There were other islands apparently involved in the study. Depending on local conditions, they may present a avenue for salt water contamination into fresh water.

**Recommendation:**

- \* Identify the actual study undertaken and review to see if an actual threat exists for contamination should the wells fail. If it is determined that a threat does exist, the wells should be properly sealed to prevent salt water intrusion.

## APPENDIX II

<b>DRAFT PESTICIDE REGULATIONS</b>
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<b>Title</b>	---	<b>Environmental Protection</b>
<b>Chapter</b>	---	<b>Air, Land and Water Pollution</b>
<b>Subchapter</b>	---	<b>State of Yap Pesticide Regulations</b>

### **Part 1 - General Provisions**

- 1.1 Authority**
- 1.2 Purpose**
- 1.3 Applicability**
- 1.4 Definitions**
- 1.5 Administration of Yap State Pesticide Regulations**
- 1.6 Prohibition and Restriction of Pesticides**
- 1.7 Integrated Pest Management**

### **Part 2 - Unlawful Acts**

### **Part 3 - Importation**

- 3.1 Notice of Intent To Import Pesticides**
- 3.2 Inspection**
- 3.3 Shipments Arriving Without Notice**
- 3.4 Detained, Denied, and Impounded Shipments**
- 3.5 Pesticide Label and Labeling Requirements**

### **Part 4 - Storage, Handling, and Disposal**

- 4.1 Storage Requirements**
- 4.2 Handling Requirements**
- 4.3 Disposal Requirements**

### **Part 5 - Recordkeeping Requirements**

- 5.1 Forms**
- 5.2 Inventory**
- 5.3 Pesticide Application Records**
- 5.4 List of Commercial Applicators**

### **Part 6 - Certification of Applicators**

- 6.1 General Standards for All Certified Applicators**
- 6.2 Determination of Competency**
- 6.3 Temporary Certification**
- 6.4 Denial, Suspension or Revocation, and Appeal**

### **Part 7 - Enforcement Provisions**

- 7.1 Rights of Entry**
- 7.2 Seizure**
- 7.3 Orders**
- 7.4 Penalty Provisions**

# DRAFT PESTICIDE REGULATIONS

## PART 1 GENERAL PROVISIONS

### 1.1 Authority.

These regulations are promulgated and issued by the Yap State Environmental Protection Agency pursuant to the authority granted it by Public Law 3-73.

### 1.2 Purpose.

The purpose of these regulations is to establish a system of safe and effective control over the importation, storage, handling, and disposal of both "General Use" and "Restricted Use" pesticides to protect human health and the environment within the State of Yap, FSM.

### 1.3 Applicability.

(a) These regulations are applicable to any person, individual, corporation, partnership, association, foundation, Federal, State, or local government agency, other institution or entity whether public or private who import, store, handle, mix, apply, or dispose of pesticides or their containers within the State of Yap. Exempt from these regulations are pesticides which are specifically intended solely for distribution via retail outlets to private individuals for domestic household use only, and whose Signal Word on the label does not exceed "Caution" as an indicator of toxicity. Examples of these kinds of pesticides would include mosquito coils, aerosol insecticide sprays, and some rodent baits.

(b) Federal, State, and local government installations, agencies, and their employees are not immune or exempt from these requirements unless specifically authorized by the Office of the Governor. Exemptions are to be handled on a case by case basis and are not to be granted to exceed one year.

(c) Effective Date. These regulation shall become effective as of Month \_\_\_\_ Date \_\_, Year 19\_\_.

(d) Repeal of Former Regulations. These regulations repeal the former Trust Territory Pesticide Regulations (Title 63, Chapter 13, Subchapter IV) which became effective August 1, 1980.

### 1.4 Definitions.

(a) ACTIVE INGREDIENT - The chemical or chemicals in a product responsible for pesticidal activity.

(b) ADJUVANT - A substance added to a pesticide to improve its effectiveness or safety. Same as additive. Examples: Penetrants, spreader-stickers, and wetting agents.

(c) ADULTERATED PESTICIDE - A pesticide that does not conform to the professed standard or quality as documented on its label or labeling.

(d) AGENCY - Yap State Environmental Protection Agency including their representatives.

- (e) **ANTIDOTE** - A practical treatment used to counteract the effects of pesticide poisoning or some other poison in the body.
- (f) **BAIT** - A food or other substance used to attract a pest to a pesticide or to a trap.
- (g) **BAND APPLICATION** - Application of a pesticide or other material in or beside a crop row rather than over the entire field.
- (h) **BASAL APPLICATION** - Application to plant stems or trunks at or just above the ground line.
- (i) **BIOLOGICAL CONTROL** - Control of pests using predators, parasites, and disease-causing organisms. May be naturally occurring or introduced.
- (j) **BRAND NAME** - The name, number, or designation of a specific pesticide product or device made by a manufacturer or formulator.
- (k) **BROADCAST APPLICATION** - The uniform application of a pesticide or other material over an entire field or treatment surface area.
- (l) **CERTIFIED PESTICIDE APPLICATOR** - Any individual who is certified by the Yap State Environmental Protection Agency for commercial or private use, or to directly supervise the application of pesticides.
- (m) **CHEMICAL NAME** - The technical name of the active ingredient(s) found in the formulated product. This complex name is derived from the chemical structure of the active ingredient.
- (n) **COMMERCIAL APPLICATOR** - Any certified applicator who uses or supervises the use of any pesticide which is classified for general or restricted use, on any property other than their own or rented by themselves. Included are government workers who apply pesticides as part of their employment. Commercial applicators are trained and tested in the general areas of safe use and handling of pesticides and pest control practices for employment in specific areas of pest management.
- (o) **COMMON NAME** - A name given to a pesticide active ingredient by a recognized committee on pesticide nomenclature. Many pesticides are known by a number of trade or brand names but the active ingredient(s) will have only one recognized common name. For example, the common name for SEVIN insecticide is "carbaryl".
- (p) **DEFOLIANT** - A chemical which initiates the premature drop of leaves.
- (q) **DESICCANT** - A chemical that promotes drying or loss of moisture from leaves or other plant parts.
- (r) **EPA REGISTRATION NUMBER** - A number assigned to a pesticide product by the United States of America Environmental Protection Agency when the product is registered by the manufacturer or the designated agent. The number must appear on all labels for a particular product if it is manufactured and distributed in the United States.
- (s) **FORMULATION** - Pesticide products as purchased, are available in a wide variety of liquid and dry forms. Active ingredients are combined with inert ingredients to satisfy different uses and for safety and ease of application. Examples of different formulations



include emulsifiable concentrates, solutions, soluble powders, wettable powders, dusts, granules, baits, aerosols, and fumigants.

(t) **GENERAL USE PESTICIDE** - A pesticide which can be purchased and used by the general public. (See Restricted Use Pesticide)

(u) **GROWTH REGULATOR** - A chemical which alters the growth processes of a plant or animal.

(v) **INERT INGREDIENT** - An inactive material in a pesticide formulation which does not have pesticidal activity.

(w) **INTEGRATED PEST MANAGEMENT** - The use of all suitable pest control methods to keep pest populations below the economic injury level. Methods include cultural practices, use of biological, physical and genetic control agents, and the selective use of pesticides.

(x) **LABELING** - Supplemental pesticide information which complements the information on the label, but which is not necessarily attached to or part of the container.

(y) **LABEL** - All printed material attached to or part of a pesticide container.

(z) **LEACHING** - A separation process in which one or more components are removed (extracted) through exposure of a mixture to the action of a solvent in which the component(s) are soluble. For example, carriage of a toxic component soluble in water downward through soil.

(aa) **MISBRANDED** - Applies to any pesticide if:

(1) Its label or labeling bears any statement, design, or graphic representation which is inaccurate or misleading in any particular fashion.

(2) A stored pesticide is not in its original container with its proper label and labeling provided by the manufacture.

(3) It is offered for sale under the name of a different pesticide.

(4) The label or labeling accompanying it does not contain, in Yapese or the English language, instructions for use which are necessary, proper, and adequate for the protection of public health and the environment.

(5) The label does not bear the Trade Name, Signal Word, Formulation, Active Ingredient, Common Name, and if applicable, Restricted Use clearly visible on the pesticide container.

(6) Any additional label or labeling which may be required by the Environmental Protection Agency is unreadable or absent.

(bb) **PERSON** - An individual, corporation, firm, business, partnership, association, the FSM or political subdivision thereof, State agency, organization, municipality, commission, foundation or other institution or entity, whether public or private.

(cc) **PESTICIDE** - Any substance, organic or inorganic used to destroy or inhibit the action of plant or animal pests. Pesticides are commonly grouped according to the target or the type of pest they control such as bactericide, fungicide, herbicide, insecticide, termiticide,

miticide, molluscicide, nematocide, predacide, and rodenticide. Although not usually considered pesticides by definition, for the purposes of these regulation, the following three classes of chemicals shall be regulated as pesticides: Defoliants, Desiccants, and Growth Regulators.

(dd) PEST - An undesirable organism (insect, bacterium, fungus, nematode, plant, virus, rodent) which is injurious to humans, desirable plants and animals, manufactured products, or natural products.

(ee) PRIVATE APPLICATOR - A certified applicator who uses or supervises the use of any pesticide which is classified for Restricted Use on property owned or rented by themselves. Private applicators are trained and tested in the safe use and handling of pesticides and for personal pest control practices. A certified applicator may only use or supervise the use of a restricted use pesticide on the property of another person when it is applied without compensation.

(ff) REGISTERED PESTICIDES - Pesticide products which have been registered by the U.S. Environmental Protection Agency for uses listed on the label.

(gg) RESISTANT - A population of organisms that are uninjured or unaffected by a certain dosage of pesticide chemical used to control other populations of the same organism successfully. Plants and animals that are unaffected by a pest species are also considered resistant.

(hh) RESTRICTED USE PESTICIDE - A pesticide which may only be purchased by a certified pesticide applicators and used only by certified applicators or person(s) directly under their supervision. Restricted use pesticides shall not be available for use by the general public due to the high toxicities and/or environmental hazards associated with them.

(ii) SIGNAL WORD(S) - Required word(s) which appear on every pesticide label to denote the relative acute toxicity of the product. The signal words are either "Danger-Poison" used with a skull and crossbones symbol for highly toxic compounds, "Danger" for skin and eye irritants, "Warning" for moderately toxic, or "Caution" for slightly toxic compounds.

#### 1.5 Administration of Yap State Pesticide Regulations.

The Administration of these regulations shall be carried out by the Yap State Environmental Protection Agency (EPA) and or other duly appointed authority, and their representatives hereafter referred to as the Agency. The Agency may take actions as may be deemed necessary to provide oversight, assure compliance, and render enforcement of these regulations. Activities may include but are not limited to administrative actions such as issuance of orders, licenses, and certification, as well as physically conducting storage, handling, and disposal site inspections, application monitoring, auditing of required records, inspection of shipments, and investigations of suspected violations.

#### 1.6 Prohibition and Restriction of Pesticides.

The Agency may prohibit or restrict the importation, sale, distribution and use of any pesticide when it is deemed likely to produce adverse effects on human health or the environment. For example, if a pesticide is determined to have a propensity for rapid leaching into ground water, its use may be specifically restricted or banned altogether due to the potential threat it may pose to human health and or the environment.

### 1.7 Integrated Pest Management.

To reduce the threat of chemical pesticides harming human health and the environment, as well as lessen the phenomenon of resistant pests to chemical control practices, non-chemical methods shall be utilized to the maximum extent practical. Prior to the importation and use of a pesticide to control identified pest organism(s), Integrated Pest Management strategies must be considered by persons intending to control pests. This consideration must evaluate viable genetic, biological, physical, and cultural control practices in addition to the use of chemical pesticides.

## **PART 2 - UNLAWFUL ACTS**

(a) It is explicitly unlawful for any person to:

(1) import general or restricted use pesticides subject to these regulations without prior submission of a "Notice of Intent to Import Pesticides" and receipt of authorization from the Agency.

(2) import, sell, distribute, or receive any pesticide which is adulterated or misbranded.

(3) import, sell, distribute, or receive any pesticide prohibited or banned by the Agency.

(4) use any pesticide in a manner not permitted by the label or labeling. For example, a pesticide may not be used in higher dosages, higher concentrations, or more frequently than indicated. All instruction, such as directions for use, safety, mixing, diluting, storage, days to harvest, slaughter, grazing and container disposal must be adhered to.

(5) detach, alter, deface, or destroy, in whole or in part, any proper pesticide label or labeling.

(6) refuse to maintain any required pesticide records, such as pesticide application records or an inventory of all regulated pesticides possessed.

(7) hinder or obstruct authorized personnel conducting an investigation of pesticide misuse.

(8) refuse authorized representative of the Agency to;

- i) inspect any required pesticide records
- ii) witness any phase of pesticide importation, application, storage, handling, or disposal practices.
- iii) interview any person involved with pesticide importation, application, storage, handling, or disposal.

(9) violate any order issued by the Agency regarding pesticide recordkeeping, storage, handling, or disposal.

(10) knowingly falsify any document(s), record(s), or certification encompassed by these regulations.

(11) handle or apply a Restricted Use pesticide unless specifically certified for its intended application or under the direct supervision of a properly certified applicator.

(12) sell or distribute any Restricted Use pesticide to persons not specifically certified for restricted use pesticides.

(13) store, handle, transport, apply, or dispose of any pesticide or pesticide container improperly or in a manner which poses an increased risk of hazard to human health or the environment.

### **PART 3 - IMPORTATION**

#### **3.1 Notice of Intent to Import Pesticides.**

Prior to placing an order with a pesticide manufacture or distributor for the importation of General Use or Restricted Use pesticides subject to these regulations, persons desiring to import a pesticide into the State of Yap shall submit a notice of intent to import pesticides on a form provided for that purpose to the Agency for approval. Approval from the Agency must be obtained before a pesticide shipment to the State of Yap is initiated.

#### **3.2 Inspection.**

When a shipment arrives, the Agency shall be immediately notified by the person importing the pesticide. The Agency shall be provided the opportunity to inspect the shipment for discrepancies and compare to the information provided on the notice of intent. Depending on the results of the inspection, the shipment may be released, detained, denied delivery, or impounded.

#### **3.3 Shipments Arriving Without Notice.**

If a pesticide or pesticide shipment is discovered to have arrived in the State of Yap without authorization by the Agency, the pesticide may be confiscated, impounded, or ordered disposed of at the expense of the person responsible for its importation or owner.

#### **3.4 Detained, Denied, and Impounded Shipments.**

All expenses associated with any pesticide shipment that is detained, denied, or impounded are the responsibility of the importer or the consignee depending on circumstances surrounding the reasons for the shipments detainment, denial, and or impoundment. Expenses include but are not limited to storage, cartage, labor, shipping, and disposal. Any pesticide shipment that is denied delivery shall be exported by the importer or consignee within sixty (60) days of when the delivery was denied.

#### **3.5 Pesticide Label and Labeling Requirements.**

(a) Any pesticide imported into the State of Yap must have all Label and Labeling clearly legible and printed in Yapese or the English language. The label must at a minimum include the following information:

(1) Trade, Brand or Product Name.

(2) Formulation, Common Name, and Chemical Name.

(3) Ingredient statement indicating every active ingredient and its percentage in the container.

- (4) Use classification statement as either a Restricted Use or Unclassified/General Use pesticide.
- (5) Type of pesticide which indicates in general terms what the product will control (for example, insecticide, herbicide, fungicide, etc.).
- (6) Net contents showing how much product is in the container.
- (7) Name and address of the manufacturer.
- (8) Emergency telephone number.
- (9) If applicable, the United States Environmental Protection Agency Registration and Establishment numbers. Establishment numbers identify the facility that produced the product.
- (10) Signal Word(s) and, if applicable, symbol.
- (11) Precautionary statements to help applicators with steps to take to protect themselves, employees, and other persons that may be exposed.
- (12) Routes of entry statements indicating which route or routes of entry are particularly hazardous.
- (13) Specific action statements recommending specific precautions to take and protective clothing and equipment to wear to reduce exposure.
- (14) Statement of practical treatment listing first-aid recommended treatments in cases of poisoning. For "Danger" labels, a note to physicians describing the appropriate medical procedures and antidotes for poisoning emergencies.
- (15) Physical and chemical hazards associated with a pesticide, if applicable, should identify and describe any special fire, explosion or chemical hazards the product may pose.
- (16) When applicable, a reentry statement containing the interval of time that must pass between the last application of a pesticide and when people may reenter a treated area without wearing appropriate protective gear.
- (17) General storage and disposal instructions indicating the appropriate storage and disposal of the pesticide and its container.
- (18) Directions for use indicating which pests the product is designed to control, the proper mixing instruction, application rates and frequencies, how close to harvest the product can be applied, and where and when the material should be applied.
- (b) Copies of pesticide labels and labeling shall be made available to the Agency prior to any pesticide importation.

#### **PART 4 - STORAGE, HANDLING, AND DISPOSAL**

Management practices ensuring safe pesticide storage, handling, and disposal are required to minimize potential threats to human health and the environment. The following are

considered the minimum requirements for safe storage, handling and disposal of applicable pesticides.

#### 4.1 Storage Requirements.

(a) Containers must be in good condition. Good condition means that metal containers should have no severe rusting, no sharp edged creases or dents, and no severe structural defects; glass containers must be sound, and not cracked, fractured, or chipped; paper and fiber containers should be dry, and not be cut, torn or degraded; and plastic containers should have no sharp edges, creases, cuts or deep abrasions. If a container is not in good condition, shows signs of failure, or begins to leak, the pesticide must be immediately transferred to another container. Containers with pools of liquid or spilled material on and around them are not considered in good condition.

(b) Containers must always be kept closed and tightly sealed except when it is necessary to add or remove material from the container. Containers must be stored up and off of the floor.

(c) Containers must not be stored in a manner that may cause them to rupture or leak.

(d) Containers shall not be located near incompatible materials. They must be physically separated from materials that may become contaminated or increase the likelihood contamination such as food stuffs or feed, clothing material, flammable material, and fertilizers.

(e) Storage areas must remain securely locked and prevent unauthorized access by unauthorized personnel, except for those times access is necessary.

(f) Storage areas must be structurally sound, secure, and designated as pesticide storage areas. They must also be well marked, adequately lit, properly ventilated, away from direct sunlight and potable water supplies, and must remain dry.

(g) Storage areas must be inspected for leaks and container deterioration caused by corrosion or other factors a minimum of once per week.

(h) Up to date inventory records must be maintained on-site at the storage location.

#### 4.2 Handling Requirements.

(a) Prior to handling, mixing, and application, the label on the pesticide container must be carefully read, understood, and all directions concerning necessary protective clothing and equipment shall be followed.

(b) Pesticides shall not be handled, mixed, applied, or transported in a manner that may cause them to contaminate unintended areas.

(c) If required, appropriate chemical cartridge with mechanical filter respirators must be worn by individuals qualitatively fit tested for the specific respirator utilized.

(d) Persons shall not eat, drink, chew substances, or smoke while handling pesticides.

(e) Proper measuring devices (measuring spoons, cups, scales) for the quantities and formulations needed shall be on hand and utilized.

(f) All measuring devices shall be labeled and kept in the pesticide storage or mixing area and never used for other purposes.

(g) Measuring devices and containers should be triple rinsed and the rinsate put into spray tanks whenever possible to avoid wasting product and creating disposal problems.

(h) Application equipment shall be checked for proper operation, leaking hoses and connections, and plugged or worn nozzles. Prior to use, equipment should also be calibrated prior to filling and use. Safe handling practices preventing inadvertent contamination and the possibility of back-siphoning shall be followed.

(i) Application of pesticides shall be under favorable weather conditions guarding against drift, leaching, and runoff when applicable.

(j) Following pesticide application, equipment and protective clothing must be cleaned following any recommendations identified on the label, in a designated area, and away from water supplies.

(k) Pesticide contaminated clothing, equipment, and containers must be properly decontaminated before disposal or reuse.

(l) Person(s) shall carefully estimate the quantity of pesticides to be applied so that only the amount needed for a particular application is mixed.

(m) When transporting pesticides;

(1) Pesticides shall not be carried in the passenger compartment of a vehicle.

(2) Food, livestock feed, fertilizers, seed, etc., should be kept separate to prevent contamination.

(3) Inspect containers prior to loading and verify that they are in good condition and properly labeled.

(4) Pesticides must never be left unattended. Containers must be made secure for transport to ensure they will not accidentally spill or leak.

#### 4.3 Disposal Requirements.

(a) Virtually all pesticides are toxic to humans and vary in their biodegradability. It is the responsibility of the person owning pesticides to ensure proper dispose of all pesticide wastes, such as unused chemicals no longer intended to be used and empty containers. Disposal costs and problems may be reduced by purchasing only the amount needed for one season. Improper disposal may create serious health and environmental hazards.

(b) Unused chemicals no longer intended to be applied, and mislabeled or adulterated pesticides are considered hazardous waste and may not be disposed of within the State of Yap without written authorization from the Agency. This authorization shall explicitly identify the type, quantity and disposal methodology to be strictly complied with for a given pesticide.

(c) Disposal of pesticide containers may be conducted in the specific manner identified on pesticide labels.

(d) Equipment rinsate generated from application spray equipment when washed and rinsed shall be sprayed on the treated area, or a crop or site which it is approved for on the product label.

(e) Under no circumstances are waste pesticides either in concentrated or diluted form, associated equipment rinsate, or containers to be disposed of in any manner which may threaten human health or the environment.

## **PART 5 - RECORDKEEPING REQUIREMENTS**

### **5.1 Forms.**

Persons importing pesticides into the State of Yap must retain all approved "Notice of Intent to Import Pesticides" forms for as long as any of the pesticides approved for importation are in their possession.

### **5.2 Inventory.**

(a) All persons who maintain and store pesticides for commercial application, and those who maintain and store restricted use pesticides for private application, shall keep an inventory of those pesticides subject to these regulations. This inventory may be in any form but must be updated every three (3) months, and at a minimum, it shall contain the following information:

- (1) Storage location
- (2) Trade, Brand or Product name plus its Common name
- (3) Formulation (e.g. Emulsifiable concentrates, solutions, soluble powders, wettable powders, dusts, granules, baits, or fumigants)
- (4) Use classification as either general or restricted use pesticide
- (5) Type of pesticide according to the target pest such as bactericides, fungicides, herbicides, insecticides, termiticides, miticides, molluscicides, nematocides, predacides, or rodenticides
- (6) Quantity on hand in relevant terms of measurement for its formulation
- (7) Date that the pesticide was purchase
- (8) Date that the inventory was taken

### **5.3 Pesticide Application Records.**

(a) Information must be recorded for any and all instances where commercial application of general and restricted use pesticides have occurred. Private applicators must keep pesticide application records for all restricted use pesticide applications. Records must be maintained for a period of three (3) years from the date of pesticide application by the person(s) responsible for the pesticide application. Information may be recorded in any form and is



acceptable provided all necessary data listed below is included and is signed by the applicator, and if applicable, the certified individual providing direct supervision:

- (1) Responsible person and contact phone number for conducting the application.
- (2) The Trade Name, Common Name, and Formulation of the applied pesticide.
- (3) The crop, commodity, or product treated; the target pest; and the physical location where the pesticide application took place.
- (4) The total area (acreage) or commodity (quantity) treated, treatment method (e.g. band, basal, or broadcast application), and the number of treatments if more than one.
- (5) The month, day, and year for each application occurred.
- (6) The total amount of the pesticide utilized per application (i.e. volume or mass per unit of area). This quantity is to be stated in terms of concentrate applied per unit area, not the amount of solution applied after it has been diluted.
- (7) Environmental condition information including the time of day that pesticides were applied, and the general weather conditions. Weather conditions shall include at a minimum, the temperature, wind direction and strength, an estimate of the percent cloud cover, and whether or not it rain during or shortly after actual application.
- (8) The individual(s) conducting pesticide application and , if applicable, the name of the certified applicator providing direct supervision.

#### 5.4 List of Commercial Applicators.

Any person(s) who employ commercial applicators must provide the Agency with the name of each applicator who conducts commercial application of pesticides for them.

### **PART 6 - CERTIFICATION OF APPLICATORS**

#### 6.1 General Standards for All Certified Applicators.

(a) A certified applicator shall be designated as either a commercial applicator or a private applicator. Applicators must show that they possess a practical knowledge of pest control utilizing chemical pesticides. Competency in the use and handling of pesticides may have to be verified by the agency through written examination and or practical demonstration, and includes comprehension of at minimum, the topics listed below:

- (1) Principles of Integrated Pest Management
- (2) Diagnosis of pest problems
- (3) Insect management, weed control, plant diseases, and vertebrate control
- (4) Pesticide formulations
- (5) Pesticide label and labeling
- (6) Toxicity and Health
- (7) Safe storage, handling, and disposal of pesticides
- (8) Pesticide emergencies
- (9) Pesticides and the environment
- (10) Pesticide application methodology and equipment
- (11) Applicable pesticide laws and regulations

## 6.2 Determination of Competency.

(a) Application for certification as either a commercial or private applicator shall be made to the Agency in writing. Requests for certification must include the reason for the request, with specific justification and any supporting documentation, such as legitimate training received from accredited sources. It is not the responsibility of the Agency to fund or provide such training or instruction.

(b) Based on the information provided, the Agency may request additional information; determine the applicant competent; or require the applicant demonstrate their competency which may require passage of a written examination. If a applicant is determined competent, they will be issued certification from the Agency identifying the specific conditions of their certification. Certifications shall be valid for two (2) years from the date of certification.

(c) If an applicant initially fails to demonstrate their competency, they must wait a minimum fourteen days before making a second attempt. Upon failure to demonstrate competency following a second attempt, they must wait a minimum ninety (90) days before making a third attempt. If an applicant fails three times to demonstrate competency, they shall not be considered by the Agency for certification for one (1) year from the date of the third and final attempt. In addition, before an individual may be considered again, the applicant seeking certification must formally re-initiate the application process in writing to the Agency.

## 6.3 Temporary Certification.

Under exceptional circumstances, the Agency may issue a temporary commercial or private certificate valid for a period not to exceed ninety (90) days. Temporary certification shall be limited to the specific types and categories of pesticide use as determined essential by the Agency. Conditions placed on temporary certification shall be based on the exceptional circumstances necessitating the temporary certification.

## 6.4 Denial, Suspension or Revocation, and Appeal.

(a) The Agency may deny certification to any person who is not a resident of the State of Yap; whose certificate is suspended or revoked; or who has been found to be in violation of any part of these regulations. In addition, the Agency may deny certification to any person who does not demonstrate competency to their satisfaction.

(b) Any certificate issued pursuant to this part may be suspended or revoked by the Agency for violation of any condition of the certificate. In addition, any unlawful act, misuse, or violation of provisions or orders issued under these regulations are also grounds for suspension or revocation of a certificate.

(c) Any person who has been denied certification or whose certificate has been suspended or revoked may appeal to the Environmental Protection Board to overturn such denial, suspension or revocation.

## **PART 7 - ENFORCEMENT PROVISIONS**

### **7.1 Rights of Entry.**

For purposes of seeking compliance, monitoring, and enforcing the provisions of these regulations, Agency representatives may enter and have access to any establishment, other place, or property where pesticides are imported, stored, handled, applied, or disposed of. Entry must be during reasonable times and must not be significantly disruptive to ongoing operations, unless there is a perceived threat to human health or the environment. The purpose for entry must be to observe, monitor, inspect, review records, collect samples, interview, or investigate suspected misuse of any pesticide in the performance of their regulatory oversight and enforcement duties.

### **7.2 Seizure.**

A pesticide may be seized or condemned by the Agency if unlawful acts or regulatory violations have been discovered which threaten human health or the environment. A notice or hearing is not required prior to the seizure of pesticides. All expenses associated with storage, handling, labor, and or disposal of a seized pesticide is the responsibility of the pesticides owner.

### **7.3 Orders.**

Whenever an occurrence or circumstance involving a pesticide is found, or deemed to be in violation of any provision contained within these regulations, the Agency may issue a written order to any person who owns, controls, or has custody of such pesticide. The written order shall direct the designated person to take whatever action that may be regarded as appropriate to protect human health and the environment. This includes, but is not limited to orders such as ceasing actions, activities, or operations, mitigating a situation, properly disposing of pesticides, and or conducting complete pesticide contamination or pollution clean up activities.

### **7.4 Penalty Provisions.**

Any person who violates any of these regulations may be subject to a fine not to exceed \$10,000.00 per day and imprisonment of not more that \_\_ year(s).

## APPENDIX III

Yap State Environmental Protection Agency  
P.O. Box 178  
Colonia, Yap, FSM 96943

EPA Tracking # \_\_\_\_\_  
Phone: 350-2113  
Fax: 350-3892

## NOTICE OF INTENT TO IMPORT PESTICIDES

**PART I - To Be Submitted for Approval Prior to Importation**

Name/Address/Phone # of Importer:

Trade Name:

**Common Name:**

Signal Word: Dangerous ( ) Warning ( )  
Caution ( )

( ) Restricted Use Pesticide

Type:      ☐ Insecticide      ☐ Herbicide  
              ☐ Fungicide      ☐ Rodenticide  
              ☐ Other: \_\_\_\_\_

[illegible]

Formulation:    ☐ EC    ☐ Wettable Powder    ☐ Granular  
                       ☐ Dust    ☐ Soluble Liquid    ☐ Soluble Powder  
                       ☐ Other: \_\_\_\_\_

Target Pest(s):

**Total Area to be Treated:**

Active Ingredient:	Percent:
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Application Rate:

Quantity: Unit Size:

Application Site Location(s):

**Manufacture:**

Importer Signature: \_\_\_\_\_ Date: \_\_\_\_\_ ( ) Copy of Pesticide Label Attached

EPA Import Authorization:            ☐ Approved            ☐ Denied            ☐ Pends

\_\_\_\_\_  
EPA Official                      Date                      ( ) Importer Notified:                      Person                      Date

## Part II - Shipment Status

Shipment Arrival Date: \_\_\_\_\_ Intended Storage Location: \_\_\_\_\_

( ) Shipment Released      ( ) Shipment Detained      ( ) Shipment Not Inspected  
( ) Shipment Impounded      ( ) Sample Taken      ( ) Other: \_\_\_\_\_

Remarks:

EPA Official	Signature	Date
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## **INSTRUCTIONS FOR THE NOTICE OF INTENT TO IMPORT PESTICIDES FORM**

The State of Yap Pesticides Regulations require persons desiring to import pesticides into the state to submit a "Notice of Intent to Import Pesticides" form to the Environmental Protection Agency prior to ordering pesticides.

Part I of the form will be completed to the maximum extent possible by the person intending to import pesticides. To expedite the ordering of pesticides, this form should be submitted to the EPA at least two (2) weeks prior to the desired date of ordering. A copy of the portion of the form completed will be provided to the importer. If there are any questions on filling out the form, the EPA will provide instruction. Failure to submit this form sufficiently far in advance may result in the shipment being delayed.

After submitting the completed portion of Part I, the EPA may approve, deny, or request additional information. The EPA will notify the importer of the status of their request as soon as a decision is made. When a notice of intent is approved, the importer will be authorized to place an order for pesticides.

When a shipment has arrived in the State of Yap, the importer must notify the EPA that it has arrived and permit the EPA the opportunity to inspect the shipment. The EPA will then complete Part II of the form. The EPA may release, impound, detain, defer inspection, or take whatever action deemed necessary to protect human health and the environment. If a shipment is impounded, detained, or other action taken, the EPA will indicate why the specific action was taken in the remarks section, then sign the form. A completed copy of the form will be provided to the importer.

**APPENDIX IV**  
**INVENTORY OF CHEMICAL PESTICIDES REPACKAGED**  
**AT**  
**YAP STATE DEPARTMENT OF AGRICULTURE AND FORESTRY**  
(25 August 1994)

AGRICULTURAL CHEMICALAPPROXIMATE QUANTITY*Powdered Material:*

Kelthane 35 Miticide	2 kg
Thiodan 50 WP Insecticide	2 kg
Dithane M4D	1 kg
Dithane M45	6 kg
Ortholide 50 Wettable	13 kg
Karathine WD	22 kg
Benlate Fungicide	4 kg
Manzate 20D	6 kg
Sevin 50 W	14 kg
Unlabeled Powder	114 kg
Unlabeled Powder	5 kg
OLW Terracide WP	4 kg
Golden Marin Fly Bate	0.5 kg
Dipel Worm Killer	0.5 kg
Captan WP	2 kg

**Total Dry Material****196 kg***Liquid Material:*

Lannate L	16 liters
Ortho Bibrom 8	4 liters
Cygone	8 liters
Triton	4 liters
Paramite Tick Killer for Pets	0.25 liter
Unlabeled Liquid	20 liters
Unlabeled Liquid	2 liters

**Total Liquid Material****54.25 liters***Note:*

- 1) *Materials were repackaged into four drums:*
  - a) *two 210-liter, metal drums with the tops cut out and;*
  - b) *two 150-liter, plastic drums with plastic covers and metal rings.*
- 2) *Individual drums were placed on a single wooden pallet and labeled with "Danger - Misc Pesticide Hazardous Waste", and covered collectively with a plastic tarp which was then labeled with "Danger - Keep Out".*