

Consultancy for Contemporary Used Oil Audits in Selected Pacific Island Countries

Report for Republic of Palau

**Prepared for the Secretariat of the Pacific Regional
Environment Programme (SPREP)**

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Executive Summary

This report covers the Republic of Palau (Palau) component of a project involving used oil audits in selected Pacific Island countries. The objective of the audits is to establish volumes of lubricating, hydraulic and transmission oils imported annually into each country and the volumes of used oil produced, stored or otherwise disposed. The work has been carried out by Contract Environmental Ltd under a contract to the Secretariat of the Pacific Regional Environment Programme (SPREP), with funding provided by the Global Environment Facility. Most of the information required for the audit has been obtained in a country visit undertaken by Martyn O’Cain from 26 to 31 May 2014 and was organised through the Palau Environmental Quality Protection Board (EQPB).

Used Oil Production

The total quantity of lubricating oils imported into Palau is about 394,500 litres per year and it is estimated that approximately 50% of that will end up as used oil. In addition small amounts of the 31.2 million litres of diesel imported into Palau ends up in the used oil stream. Other used oil components come from diesel waste, small amounts of hydraulic and transmission oils, brake fluid and vegetable oil. It is therefore estimated that between about 190 and 220 thousand litres of used oil is produced per year. Certainty estimates for the estimated volumes are given at the end of s4.

Used Oil Collection and Disposal

There are no private used oil recovery companies in Palau. Collection and disposal is overseen by the Palua Public Utilities Corporation (PPUC). Used oil is collected at their tank farm in Aimeliik and stored in a tank with a capacity of around 2.8 million litres. When enough used oil volume has been collected the government tenders for contractors to export the product off shore.

Up until recently there was no cost to the businesses generating used oil to dispose of the product at Aimeliik, however in July 2013 PPUC introduced a fee of \$ 80.00/drum which is payable prior to delivery. The introduced fee has caused some reluctance amongst the business owners to deliver the used oil to Aimeliik.

Based on the volumes of used oil that are being generated and the figures showing what is being stored and stockpiled there is confidence that used oil is not being disposed of unlawfully.

There are no oil reuse options available in Palau at this stage. The best management option is for the used oil to be collected and exported off shore.

National Instruments

The EQPB does provide governance over the management of used oil. The most prescriptive regulation is Regulation 2401-11-24 which gives EQPB authority over the mismanagement of hazardous substances which include petroleum products.

Another relevant instrument is the Waste Oil Acceptance Policy issued by PPUC. The policy describes the administration, containment and cost protocols for disposing of used oil at their facilities.

Recommendations

Based on this audit of used oil in the Republic of Palau the following recommendations are offered:

- A unified approach from PPUC and EQPB to ensure that the correct information is being received by the businesses generating used oil in Palau. Currently there appears to be much misinformation within the industry which is hampering the disposal of the product to Malakal or Aimeliik Power Stations. Please note that this may have already occurred by the time this report is finalised and circulated;
- Review the \$80.00/drum fee required by PPUC to accept used oil. While PPUC is a profit generating company and the recovery of costs and a margin of profit is not unacceptable, an inflated cost to manage used oil may be to the detriment of the Palau environment and possibly the tourism industry;
- Create a more centralised and formal collection procedure. This will include establishing a secure and environmentally friendly collection facility that is bunded, covered and monitored to ensure the entry and exit of used oil is correctly managed;
- Investigate the viability of leasing the collection and delivery of used oil to the private sector. A designated oil recovery company is motivated to ensure all used oil is managed correctly if the costs are realistic and provide value;
- Establish suitable time frames for exporting the collected oil at Aimeliik to an offshore facility given that the estimated amount of used oil being generated each year is now available. This includes executing tender contracts within a timely manner;
- Independent scrutiny of tendering contracts for the export of the used oil. Consideration should be given to the reputation and professionalism of the appointed contractor, including ensuring they have appropriate ships for carrying the oil; they have good history within the industry; they have guaranteed contracts with an approved treatment facility and that they will guarantee stewardship of the product once it has left Palau;
- A review of the means of enforcement by EQPB to prevent mismanagement of used oil causing pollution problems. This may include registering all facilities and businesses that generate used oil and restricting the volume of used oil they can stockpile based on the type of industry and the storage facilities they have available. If they exceed their stockpile allocation then enforcement can apply. Such measures do need to be given careful consideration as they can be the catalyst to uncontrolled disposal or dumping;
- Accompanying this could be a review of international best practice in the management and stewardship of oil/used oil;
- Consider re-use options on Palau; and
- The most obvious re-use option would be to establish a waste to energy system at Aimeliik Power Station. Briefly, this would involve establishing a suitably sized burner capable of being fuelled by used oil (similar to the small version already operating at the site). Connect an electricity generating turbine that recovers the energy generated by the oil combustion. Connect the turbine to the main power grid which will then supplement the existing power production.

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1. Introduction

1.1 Purpose

This report covers the Republic of Palau component of a project involving used oil audits in selected Pacific Island countries. The objective of the audits was to establish volumes of lubricating, hydraulic and transmission oils imported annually into each country and the volumes of used oil produced, stored or otherwise disposed. The work was carried out by Contract Environmental Ltd under a contract to the Secretariat of the Pacific Regional Environment Programme (SPREP), with funding provided by the Global Environment Facility. Most of the information required for the audit was obtained in a country visit undertaken by John O’Grady and Martyn O’Cain from 25 to 31 May 2014 and was organised through the Environment Quality Protection Board of Palau (EQPB).

1.2 Scope of Work

A copy of the Terms of Reference for this work is given in Appendix 1. It lists the following tasks:

- a) *Establish and document national oil import/generation volumes and rates for the last 3 years ideally 2011, 2012 and 2013;*
- b) *Establish national used oil production rates for the last 3 years ideally 2011, 2012 and 2013;*
- c) *[Prepare an] Oil Audit Balance for the last 3 years ideally 2011, 2012 and 2013;*
- d) *Document and summarise existing national used oil management procedures; and*
- e) *Document and summarise existing national used oil management instruments.*

1.3 Report Content and Layout

Section 2 of this report provides details of the annual oil imports to Palau, based on the data obtained from the Customs Department and from companies that import directly into Palau (IP & E, Ace Hardware, Blue Bay, and Masons Hardware).

An estimate of used oil generation rates and volumes is set out in Section 3 and Section 4 contains the overall audit balance, including an assessment of uncertainties in the data.

Section 5 provides information on existing storage facilities for used oil and current stockpiles; current reuse or disposal methods; and an assessment of possible future alternatives. Information on the current shipping costs to the nearest main port is also covered here.

Section 6 sets out the details of the relevant national instruments for used oil management.

Section 7 provides some overall discussions and recommendations, and is followed by the following 4 appendices:

- A copy of the TOR is given in Appendix 1;
- Appendix 2 provides detailed notes on all of the people and organisations contacted during the country visit;
- The PPUC Waste Oil Acceptance Policy is set out in Appendix 3; and
- Palau Regulations (EQPB) are attached as Appendix 4.

2.0 Oil Imports

2.1 Information Provided by Customs

The following data in Table 1 have been obtained from the Customs Department for 2011, 2012 and 2013.

Table 1 - Oil Import Data for Palau (2011-2013) as provided by Customs Department

Type of Oil	2011 (litres)	2012 (litres)	2013 (litres)	3-Year Average (litres)
Lubricating Oil	458,490	291,697	379,927	376,704
Light Oils & Other Oils	15,275	14,207	24,004	17,828
Diesel	28,763,465	30,586,904	34,272,113	31,207,494

Note: The data provided by Customs did not distinguish between the different oil type's i.e. hydraulic oil, transmission oil, two stroke oil etc.

2.2 Additional Information on Imports

Table 2 shows the data that has been collected from individual importers of oils that include but are not limited to lubricating oil, hydraulic oil, transmission fluid and two-stroke oil. The information provided is not complete for all 3 years therefore an average volume is not presented.

Table 2 – Lubricating Oil Import Data for Palau (2011-2013) as Provided by Importing Companies

Type of Oil	2011 (litres)	2012 (litres)	2013 (litres)
IP & E	307,896	190,963	173,688
Ace Hardware	-	-	5,704
Blue Bay	-	46,468	76,580
Masons Hardware	-	-	5,000
Total	-	-	260,972

The difference between the information provided by Customs for imported oil and that provided by the individual importers is approximately 140,000 L/year. There is no obvious reason for the discrepancy. It is possible that a number of small oil importers were missed during the site visit however it is unlikely that these businesses would make up the missing 140,000 L. It is possible that transient ships or their agents based in Palau import oil directly but were not identified during the

execution of this investigation. Alternatively the importers may be understating the amount they actually import however there is no known reason why this would occur. The volumes provided by Customs will be used to determine the mass balance of used oil as they are considered more reliable.

2.3 Cost and Price Information

The following price information for lubricating oil was obtained from CTSI Logistics Ltd during investigations undertaken in other Micronesia islands.

Item	Wholesale Price
Lubricating oil, 208 litres	\$ 378 - \$499*
Lubricating oil, 20 litres	\$46 - \$55*
Lubricating oil, 1 litre	\$3.30*
Diesel fuel	\$1.16 – \$1.33

* these costs include freight and customs duty of 4%

3.0 Used Oil Production

The information collected on the production of used oil in Palau was obtained by visiting as many companies and operations as possible that could potentially generate used oil. Individuals at each location were asked specifically how much used oil their operation generated over a set period of time. The information was provided verbally as very few operators kept detailed written records. The information was usually provided as drums per month which was then extrapolated to litres per year. The volumes of used oil identified at each locality are included in the contacts list attached as Appendix 2.2 and a summary table is also given in section 4.2.

3.1 Used Oil Recovery by Vehicle and Machinery Servicing

Twenty four sites were visited that maintained or serviced vehicles either for their own use or for off-site customers. The businesses and organisations that were visited included auto repair shops, quarry operations, construction companies, oil supply depots and air and sea port terminals.

The annual volume of oil generated by these businesses is estimated to be 60,845 L/yr

3.2 Used Oil Recovery from Ship and Boat Servicing

Eight sites were visited that maintained, repaired or serviced engines associated with boats, both commercial and privately owned. The businesses that were visited included small engine repair shops, marine tourism companies and a commercial fishing company.

The annual volume of oil generated by these businesses is estimated to be 33,945 L/yr.

All of the individual boats or marine operations that were visited used diesel to run their engines. None of the boats used heavy fuel oil.

3.3 Used Oil Recovery by Power Stations and Small Generators

Large power generators often use heavy fuel oil as the operating fuel. In Palau all the generators that were inspected used diesel as the fuel source. Therefore any used oil that is being generated at these sites is from the use of lubricating oil for running and maintaining the generators.

3.3.1 Small Generators

Four sites were visited where diesel generators were used to run the operation. The generators allowed them to operate separately from the country's main power grid. As a result the generators require regular servicing and maintenance. Three of the sites were large holiday resorts or hotels that operate predominantly off the main power grid. However at the time of the investigation, the generator at the Palasia Hotel had been sent to Taiwan for repair. The hotel was operating off the

main Island power supply with only a small back up generator available if emergency power was required.

The fourth site that was visited was a cool store that was operated by PITI Fishing. The cool store was used as part of the fishing industry and used several large engines to maintain the cool store operation.

The annual volume of oil generated by these operations is calculated to be 29,800 L/yr

3.3.2 Malakal Power Station

Malakal Power Station located in Koror was once the main power station for Palau. However since the construction of a larger power plant at Aimeliik the Malakal plant is predominantly used to support the power generation requirements for the city of Koror.

The annual volume of oil generated by the Malakal Power Station is calculated to be 77,400 L/yr

3.4.3 Aimeliik Power Station

The Aimeliik Power Station is the main power generator for the country of Palau. Approximately 2-3 years ago there was a fire that destroyed the power plant. Since that time a new power plant has been built at a site immediately adjacent to the original operation. At the time this audit was being undertaken the new power plant had only been operational for around one month. The new plant is equipped with a small burner that is used to burn used oil that is generated from the servicing and maintenance of the main generators. Used oil taken from the generators is transferred to an on-site separator that removes any water that has accumulated. The water is discharged directly to ground while the oil is pumped to the burner and ignited. The heat from the burner is discharged to the atmosphere. The burner is small and only has capacity for the volume of used oil that is generated by the operation of the power plant. Figure 1 shows the burner in operation.

Given that the new power plant at Aimeliik is capable of burning the used oil that it generates, there was no used oil generation recorded for this facility.

3.5 Used Oil Recovered from Outer Islands

No formal information was available regarding oil use or generation on the outer islands of Palau. It is accepted that there would be a small percentage of the total volume of used oil being generated on the smaller islands however anecdotal evidence gathered from the main centres throughout the Micronesia Islands indicates that used oil maybe re-used for such things as termite control and fuel for lanterns.

Figure 1 – Aimeliik power plant used oil burner

The 2005 Census information for Palau indicated that only two outer Islands were inhabited (Peleliu Island and Kayangel Island). In 2005 the combined population on these islands was 890. This represents less than 5% of the total population (19,907). The potential used oil generation on the outer islands is expected to be minimal based on these figures and the absence of large power generators, vehicles, industry etc.

3.6 Survey Allowance

It would be unrealistic to assume that this audit is without inaccuracies and incomplete data. It is accepted that there are businesses and companies that generate used oil but were not visited as part of this audit. Such operations would also include individual vehicle owners that carry out their own maintenance and repair. It is unknown how many of these operations there are; therefore a 10% allowance has been added to the total volume of used oil that has been determined from visiting individual sites.

4.0 Oil Audit Balance

4.1 Theoretical Used Oil Production Rates

An estimate can be made of the quantities of used oil produced based on the information provided in the previous section.

Waste oil from lubricating oil:

The total annual quantity of lubricating oil imported is approximately 377,000 litres, based on the average yearly figure. Typically about 50%¹ of this figure would be burnt or lost through spillages, and 50% would contribute to the total used oil produced. The estimate of used oil from lubricating oil is therefore **188,500 litres**.

Waste Oil from Fuel Oil from Power Stations

The generators operating in Palau use standard diesel to produce the country's power supply. No used oil is generated from the combustion process however it is generated from the lubricating oil that is required to run and maintain the engines.

Waste Oil from Ships

As a member of the International Convention for the Prevention of Pollution from Ships (MARPOL) Palau is expected to accept used oil from visiting ships. It is our understanding that Palau is not currently required to meet its MARPOL responsibilities as it does not have the facilities at the docking port to accept, handle or dispose of such a product in the quantities that would be generated.

Waste Oil from Diesel and other Sources

Diesel and other products (e.g. solvents, mineral turpentine, grease, hydraulic oil, cooking oil etc) also contribute minor amounts to the used oil stream at say 0.01%¹ of the figures that are available from the Customs Department, i.e. **3,120 litres/year**.

The above figures are summarised in Table 2 below:

Table 2 – Theoretical Used Oil Production in Palau

Source of Used Oil	Estimated Quantities (litres/year)
Lubricating Oil	188,500
Waste from Diesel and Other Sources	3,120
TOTAL	191,620

¹ These figures have previously been accepted by SPREP based on earlier used oil audits

4.2 Actual Used Oil Production Rates

The used oil being collected on Palau by auto repair shops, heavy plant and machinery operators, generator operators and boat maintenance operations is generally being mixed without any record of what waste stream it is being generated from. Only one or two operators were able to indicate the quantities of used oil generated from the different oil products. Therefore for the purpose of this report used lubricating oil, hydraulic oil, transmission oils, grease, and diesel 'slops' are considered as the total used oil generated.

Table 3 – Actual Used Waste Oil Collection in Palau

Source of Used Oil	Actual Quantities (litres/year)
Vehicle and machinery servicing	60,845
Ship and boat servicing	33,945
Small generators	29,800
Malakal Power Station	77,400
Sub Total	201,990
Survey Allowance (10%)	20,200
TOTAL	222,190

4.3 Used Oil Balance

There is a 13.8% difference between the theoretical oil production rates and the actual oil production rates as determined from interviewing individual businesses. The 13.8% is in favour of the actual oil generation rates which may indicate:

- The theoretical assumption that 50% of the oil would be burnt during a normal life cycle may be too generous.
- That the contribution of diesel waste to the used oil stream is marginally low
- The 10% survey allowance is too high
- An over estimate by the individuals that were interviewed regarding the actual amount they expect to generate each year
- A combination of some or all of the above

Having said this, 13.8% is relatively close, so either figure could be taken as giving a reasonable reflection of what is being generated as used oil in Palau.

4.4 Certainty Assessment

The confidence levels for each component of the audit balance are summarised below:

- The data for lubricating oil imports can be taken as having a **high level of confidence** because it is based on official Customs data. The lack of definition around the light oils and other oils reduces the level of certainty somewhat.
- The figure for total used oil produced can be taken as having a **medium level of confidence**. The data is reliant on the accuracy of the people that were interviewed at each of the locations.

5.0 Current Storage and Disposal Practices

5.1 Existing Storage Facilities and Current Stockpiles

5.1.1 Storage Facilities (Aimeliik Power Station)

There is no specialised oil recovery company based in Palau however, the PPUC site in Aimeliik currently accepts used oil from the general public and stores it in one of the tanks located within its tank farm. There is no formal collection system; it is the responsibility of individual companies and businesses to arrange transportation to Aimeliik or Malakal for storage.

The tank at Aimeliik has a capacity of approximately 2.8 million litres. In January 2013 the tank was emptied with the used oil taken off shore under a contract issued by the Palau Government. The contract was for the removal of approximately 2 million litres however the contracting company left approximately 237,000 L of 'sludge' in the bottom of the tank where it currently remains. This product may be mostly oily water.

The total volume of used oil in the tank at the time of inspection was 433,000 L of which just over half (237,000 L) is historic sludge and oily water. The balance (196,000 L) is used oil that has been collected and stored since January 2013 when it was last emptied. The tank has the capacity to accept another 2.4 million L.

It is important to note that in July 2013, the PPUC issued a memorandum stating that from that date forth there would be a charge of \$80.00 per 55-gallon drum to any company or individual wishing to dispose of waste oil via the PPUC plant. Along with the memorandum being issued was a 'Waste Oil Acceptance Policy' that set out the procedures that were required to be fulfilled before PPUC could accept any used oil. Both documents are attached as Appendix 4.

The introduction the \$80.00 fee has caused concern amongst the companies and businesses that generate used oil which in turn has slowed down the volume that is being taken to the Aimeliik facility.

5.1.2 Current Stockpiles

Thirty eight individual sites were visited as part of the used oil audit. At each location the volume of used oil that was being stockpiled on the site was recorded and photographed. The total volume of used oil recorded at the time of the audit was 105,256 L. This figure is likely to be a slight underestimate as it is accepted that not every container holding used oil was inspected by the project representatives. Similar to the error margin described for the used oil generation an increase of 10% would be considered realistic.

Therefore the total volume of used oil stockpiled on Palau, excluding the Aimeliik Power Station stockpile is 115,780 L.

The volumes stockpiled at each location are included in the contacts list attached as Appendix 2.2.

Some of the sites that were visited had well-managed storage facilities that included bunds and weather protection, however the majority of sites were poorly managed and exposed the local environment to significant risk from the uncontrolled release of used oil.

5.2 Current Reuse or Disposal Methods

Currently there are no acceptable reuse options located on Palau. All the light industry that was visited did not use burners or generators that were capable of utilising used oil. All the generators that were visited used diesel to fuel the operation.

It was encouraging however to observe that the new power station did manage used oil produced from the maintenance of the existing generators albeit on a small self-sustaining scale.

The only option currently available for the disposal of used oil from Palau, at the time the audit was undertaken, is to have it taken off shore and disposed of at a facility that has the capability to treat the product to a standard where it can be reused for light and/or heavy industry purposes elsewhere.

5.3 Assessment of Possible Future Alternatives.

Future alternatives are limited unless the existing users of large generators and possibly the asphalt batching plant are prepared, and can be funded, to upgrade their existing diesel-driven operations to ones that can operate with treated used oil. This is possible but unlikely without outside funding to do so. Any change would also have to include a basic used oil treatment facility to improve the oil quality.

As discussed earlier the new power station does have the capability to manage used oil via its on-site burner. The issue however is that it does not have the capacity to accept used oil from outside sources. If a similar burner was to be set up at this or the Malakal location, with increased capacity then more used oil could be removed from the current waste stream which is being disposed of offshore. Extending this scenario would be to couple the oil burner with a heat recovery unit that could generate energy thus providing a waste to energy option. Such a facility would be best suited at either of the existing power stations as they already have the infrastructure to deliver the energy that is generated.

It is acknowledged that this would require significant upfront capital to design and construct which would most likely be outside the means of the Palau Government without an offshore partner.

5.4 Administration of Used Oil Exports

Palau is a party to the Basel Convention but is not a party to the Waigani Convention. As such, Palau may export used oil to other countries that are parties to Basel (eg. Philippines, Marshall Islands and Nauru) but may not export to a Waigani party country (unless that country is also a party to Basel; eg. FSM, but not Fiji or Vanuatu).

No paperwork was sighted to show that the used oil exports noted in section 5.1.1 were carried out in accordance with the approvals required under the Basel Convention. It is understood however that the used oil went to the Philippines and this would not have been possible if the requirements of the Basel Convention had not been met.

5.5 Current Shipping Costs

CTSI Logistics estimated the cost to ship a 20 ft container to the Philippine's at \$2,500. The estimate excludes:

- Bladder/drum costs
- Basel Convention consent costs
- Insurances
- Wharf costs
- Custom costs

6.0 Relevant National Instruments

6.1 Relevant National Legislation and Regulations

The Republic of Palau has a comprehensive set of regulations that control a number of environmental activities however there is no single section that is specific to the management of used or waste oil. The management of waste oil is included under 'hazardous substances' and is discussed within a number of regulations.

The most descriptive regulation with regard to the management of used oil is Regulation 2401-11-24 Written Approval for Hazardous Substances. It states *"It shall be in violation of these regulations for any person to store, dispose of or allow to accumulate any hazardous substance in such a manner that the substance may enter the surface or ground waters of the Republic of Palau without first obtaining written approval of the EQPB. Such substances include, but are not limited to petroleum products, pesticides, radioactive substances, and toxic chemicals. The EQPB may require persons handling hazardous substances to implement measures to reduce the possibility of contaminating the surface or ground waters of the Republic of Palau"*.

The management of used oil is also regulated under the country's solid waste regulations. Regulation 2401-31 03 (KK) defines solid waste as *"... garbage, refuse, and other discarded solid materials including solid waste materials resulting from industrial and commercial operations ...This definition is intended to include liquid waste materials such as waste oil, as well as pesticides, paints, solvents, and hazardous waste"*.

Based on the definition described above Chapter 2401-31 Solid Waste Management Regulations also control the use, management and disposal of used or waste oil. The EQPB Regulations are attached as Appendix 5.

6.2 Relevant National Programmes and Policies

The most relevant policy to the management of used oil in Palau is the PPUC Waste Oil Acceptance Policy. This policy was established in conjunction with the introduction of the \$80.00/drum fee for the disposal of used oil at Aimeliik power station.

The policy outlines:

- The hours of operation;
- The sign-in procedures at the Main Administration Building;
- Sign-in procedures at Malakal and Aimeliik Power Stations;
- Disposition of material; and
- Procedures for containing used oil.

A copy of the full Waste Oil acceptance Policy is attached as Appendix 6.

7.0 Discussion and Recommendations

7.1 Used Oil Generation

The quantity of lubricating oil imports into Palau is about 394,500 litres per year and it is estimated that approximately half that would end up as used oil. In addition small amounts of the 31.2 million litres of diesel and other oil based products imported into Palau would end up in the used oil stream.

All the oil generated is collected from the maintenance of vehicles, boats or generators. Palau does not have the facilities to collect and purify used fuel oil from visiting ships.

There are no established companies in Palau that recover used oil from the businesses and companies that generate the used oil as part of their day-to-day operations. However there is an informal understanding that PPUC at Aimeliik will accept used oil for storage within their tank farm.

The amount being generated is calculated at around 200,000 L/year while at the time the investigation was undertaken about 549,000 L of used oil was currently stored on Palau. 116,000 L is being stockpiled on individual sites and 433,000 L is stored in the tank at Aimeliik Power Station (237,000 L historical sludge/oily water and 196,000 L used oil). If the historical sludge and oily water volume is removed from the total amount stockpiled then the figures indicate that there is just about 18 months of generated used oil (312,000 L) currently stockpiled in Palau. This roughly lines up with the timeframes associated with the removal of used oil from the Aimeliik tank. Under the contract requirements the used oil was to be removed in 2011 and it was specifically for approximately 2 million litres. The fact that it was not removed until January 2013 accounts for the now 18 months of stockpiled product.

7.2 Used Oil Collection

As discussed in Section 5.1.1 there is no established oil recovery company operating in Palau. There is an informal understanding within the country that PPUC at Aimeliik will accept used oil at the power station and store it in a 2.8 million litre tank that is located within the existing tank farm. This system appears to have been working successfully for a number of years. However, as of July 2013 the PPUC introduced a charge of \$80.00 for each drum of used oil delivered to the power plant.

There has been reluctance by businesses delivering used oil to Aimeliik. This is shown in the official figures produced by PPUC showing no used oil being delivered from June 2013 to January 2014 (some of the reason is attributed to the November typhoon). From January to April 2014 only 32 drums (6,656 L) were received by PPUC. The affect this is having is that businesses, large and small, are stockpiling drums of used oil in the hope that the charge will stop or they will find an alternative disposal method. Business owners were also concerned that they were required to have the oil delivered at their cost and that they were not getting their drums returned by PPUC.

Some businesses that were interviewed expressed that they had been told PPUC was no longer accepting used oil which is the reason why they are stockpiling the product at their premises. It was unclear at the time of the investigation whether there was genuine misinformation within the industry or it was just an excuse by businesses to avoid paying the \$80.00 fee.

Currently there is 116,000 L stockpiled on premises around Palau. This poses a potential significant environmental risk to Palau. There are no viable reuse options available due to the absence of suitable industries on Palau therefore the only choice is for it to be delivered to Aimeliik for safe storage and eventual export.

It has also become evident that while the PPUC Waste Oil Acceptance Policy indicates that both Malakal and Aimeliik Power Stations will accept used oil if the appropriate paper work has been completed and the oil is in the correct containers, there is no formalised or centralised collection system.

Malakal may accept authorised used oil however there is no designated collection area that has been specifically established for the short or medium term storage of drums containing used oil. There is no formal collection system from the businesses to the power stations. Currently it is an ad hoc situation where the businesses are expected to oversee the delivery of the drums. This is difficult for some small operators who do not have the capability of achieving this. This current system requires reviewing.

7.3 Used Oil Management

The volumes of used oil that are being generated and those that have been identified in stockpiles do indicate that businesses on Palau that produce used oil are collecting and storing it. It does not appear to be being mismanaged or disposed of indiscriminately.

However there are two issues that require addressing with regard to the management of used oil on the Island:

- Very few sites that were visited had suitable facilities for storing significant volumes of used oil in drums. Sites were not bunded nor covered to provide the level of environmental protection that should be expected. Some leakage and spillage was also evident. Figures 3 – 4 provide examples of how some used oil drums are being managed; and
- The recent \$80.00/drum fee introduced by PPUC has resulted in businesses stockpiling more used oil in areas that are not designed for hazardous substance storage. It has also raised concern that illegal dumping might start to occur given some companies will either refuse to pay the fee or simply cannot afford to do so.

The EQPB do have the authority within their regulations to monitor and enforce suitable used oil management however the issue will be one of resources both human and financial to ensure suitable implementation. These issues do require to be addressed at a government level.

With regard to the management of used oil at a national level, based on existing infrastructure and systems that are already in place, the findings of this report do suggest that the collection of used oil and its eventual export off shore is the most appropriate way to manage the product in the foreseeable future.

PPUC Aimeliik has the facilities and the capability to easily and securely transfer the oil on to a ship for transport to an offshore treatment facility.

The Aimeliik Power Station is the most suitable facility to manage and store used oil on Palau.

Figure 3 – failed drum



Figure 4 – multiple drums stored outside unprotected



Figure 5 – visible oil stains from corroding drums



The following table provides a summary of the key information collected in the survey:

Table 4: Summary of Key Information on Waste Oil for Palau

ANNUAL OIL IMPORT VOLUME (LITRES/YEAR)	ANNUAL WASTE VOLUME ESTIMATE (LITRES/YEAR)	CURRENT STOCKPILE OF WASTE OIL ESTIMATE	ORGANISED COLLECTION BY?
394,500 litres/year	190,000 – 220,000 litres/year	549,000 litres	PPUC
DIRECT CONTAINER SHIPPING ROUTE TO PHILIPPINES?	SHIPPING COSTS (APPROX. FOR A 20FT CONTAINER)	CURRENT REGULATORY DRIVERS?	PARTY TO BASEL/WAIGANI?
Yes	\$2,500	Yes (EQPB Regulations)	Yes/No

7.4 Recommendations

Based on this audit of used oil in Palau the following recommendations are offered:

Short term

- A unified approach from PPUC and EQPB to ensure that the correct information is being received by the businesses generating used oil in Palau. Currently there appears to be a lot of misinformation within the industry which is hampering the disposal of the product to Malakal or Aimeliik Power Stations. Please note that this may have already been addressed by the time this report is finalised and circulated; and
- Review the \$80.00/drum fee required by PPUC to accept used oil. While PPUC is a profit generating company and the recovery of costs and a margin of profit is not unacceptable, an inflated cost to manage used oil may be to the detriment of the Palau environment and possibly the tourism industry.

Medium term

- Create a more centralised and formal collection procedure. This will include establishing a secure and environmentally sound collection facility that is bunded, covered and monitored to ensure the entry and exit of used oil is correctly managed;
- Investigate the viability of leasing the collection and delivery of used oil to the private sector. A designated oil recovery company is motivated to ensure all used oil is managed correctly if the costs are realistic and provide value;
- Establish suitable time frames for exporting the collected oil at Aimeliik to an offshore facility given that the estimated amount of used oil being generated each year is now available. This includes executing tender contracts within a timely manner;
- Independent scrutiny of tendering contracts for the export of the used oil. Consideration should be given to the reputation and professionalism of the appointed contractor. Such

things as ensuring they have appropriate ships for carrying the oil; they have good history within the industry; they have guaranteed contracts with an approved treatment facility and that they will guarantee stewardship of the product once it has left Palau;

- A review of the means of enforcement by EQPB to prevent mismanagement of used oil causing pollution problems. This may include registering all facilities and businesses that generate used oil and restricting the volume of used oil they can stockpile based on the type of industry and the storage facilities they have available. If they exceed their stockpile allocation then enforcement can apply. Such measures do need to be given careful consideration as they can be the catalyst to uncontrolled disposal or dumping; and
- Accompanying this could be a review of international best practice in the management and stewardship of oil/used oil.

Long term

- Consider re-use options on Palau. The most obvious re-use option would be to establish a waste to energy system at Aimeliik Power Station. Briefly, this would involve establishing a suitably sized burner capable of being fuelled by used oil (similar to the small version already operating at the site). Connect the burner to a turbine generating electricity to supply the main power grid.

It is acknowledged that the implementation of some of these recommendations will require significant financial capital that is unlikely to be readily available. Funding from an outside agency would more than likely be required.

Appendix 1: Copy of the Terms of Reference

Summary

Completion of contemporary used oil audits in Cook Islands, FSM, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Solomon Islands, Tonga, and Tuvalu

Objective

Completion of contemporary used oil audits in Cook Islands, FSM, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Solomon Islands, Tonga, and Tuvalu to establish volumes of lubricating, hydraulic and transmissions oils imported into each country and the volume of used oil produced, and stored or otherwise disposed of.

Location of Work

- Sub-region A: PNG
- Sub-region B: FSM, Marshall Islands and Palau
- Sub-region C: Kiribati, Nauru , Solomon Islands and Tuvalu
- Sub-region D: Tonga, Cook Islands, and Niue

Tasks

For each nominated sub-region (A, B, C & D), the Consultant will visit each country and spend as much time as is necessary to collect the information required to:

- a. Establish and document national oil import/generation volumes and rates for the last 3 years ideally 2011, 2012 and 2013:
 - i. Document by major suppliers, the annual volume of lubricating, hydraulic and transmission oils imported into each country for internal use;
 - ii. Document quantities of each oil distributed to outlying islands from main port(s) of entry;
 - iii. Obtain retail and wholesale purchase costs for: a 205litre and 20litre drum; and 5 litre, 4 litre and a 1 litre containers of lubricating oils; and
 - iv. Identify prices for fuels in particular the cost of diesel fuel purchased by power generators.
- b. Establish national used oil production rates for the last 3 years ideally 2011, 2012 and 2013:
 - i. Document used oil volumes recovered from outlying islands;
 - ii. Visit large and small vehicle service centres to establish actual recovery rates;
 - iii. Visit bus, haulage and construction companies to establish actual recovery rates;
 - iv. Visit the port authority, operators of fishing/private vessel and international vessels, shipping agents and shipping companies to establish actual recovery rates;

- v. Visit electricity generators using diesel powered generators to establish recovery rates; and
- vi. Document volumes of used oil generated by any other major users.
- c. Oil Audit Balance for the last 3 years ideally 2011, 2012 and 2013:
 - i. Prepare an audit balance of new oils and used oils.
- d. Document and summarise existing national used oil management procedures:
 - i. Identify existing storage facilities and stored oil volumes;
 - ii. Identify where possible, current used oil disposal locations;
 - iii. Provide photographic records of existing collection and storage facilities;
 - iv. Identify possible end users in country or within the relevant distribution network for the used oil, either using the used oil as a diesel extender, a supplementary furnace fuel etc;
 - v. Review the paperwork pertaining to the transportation of any used oil from each country; and
 - vi. Document shipping costs of containerised or tank-tainers of used oil to the nearest main port with adjacent used oil recycling facilities (e.g. Australia, Fiji, India, Japan, New Zealand, Philippines, Singapore). Shipping costs shall include documentation costs, port handling costs and any insurance costs.
- e. Document and summarise existing national used oil management instruments:
 - i. Document used oil provisions in national legislations by identifying relevant national waste management legislation, regulations and policies that manage used oil, and provide an overview of any national used oil management regulatory considerations.

Project Deliverables

Provide comprehensive draft audit reports (individual reports for each country) including the methodology used and associated confidence levels for the reported data for each country by the 29th August 2014 and final reports by the 30th September 2014 or other date subsequently agreed with SPREP.

Timeframes

All final reports completed and submitted to SPREP within twenty six (26) weeks from the date of contract signature.

Appendix 2: Organisational Details and List of Contacts

A2.1 Organisational Details

The visit to Palau took place from 25 to 31 May 2014. The consultants were John O'Grady and Martyn O'Cain. .

The primary agency for liaison was the Palau Environmental Quality Protection Board, and the following personnel were involved:

Roxanne Blesam, Office Manager

Kimie Ngirchechol, Supervisor Water Quality Lab

Carlos Wasisang, Senior Environmental Officer

Anthony Adelbai, Jr, Environmental Officer

These officers were very helpful and provided considerable support during the visit.

Numerous other people were visited and considerable assistance was willingly provided. Full contact details are given below.

A2.2. List of Contacts

Company	Date	Location	Industry	Category	ULO Generated (litre/year)	Stockpiled (litres)
PIDC Marine	29/05/2014	Koror	Boat Repair	Boat	415	415
NECO Marine	27/05/2014	Ngermid	Boat Repair	Boat	7,500	3,120
PITI Fishing	26/05/2014	Malakal	Fishing	Boat	9,400	6,250
Palau Water Sports	28/05/2014	Malakal	Marine Tourism	Boat	1,310	5,600
Impac	27/05/2014	Malakal	Marine Tourism	Boat	420	0
PDC	27/05/2014		Marine Tourism	Boat	1,200	416
Sams Tours	27/05/2014	Malakal	Marine Tourism	Boat	1,200	2,300
Fish n Fins	27/05/2014	Medalaih	Marine Tourism	Boat	12,500	0
PITI Cool Store	26/05/2014	Malakal	Fishing	Generator	3,100	2,500
Palasia Hotel	27/05/2014		Hotel	Generator	1,700	200
Palau Royal Resort	26/05/2014	Malakal	Hotel	Generator	10,000	2,100
Palau Pacific Resort	26/05/2014	Ngerkebesang	Hotel	Generator	15,000	4,000
Malakal Power Station	29/05/2014	Malakal	Power Station	Generator	77,400	0

Palau Waste Oil Audit

Surangel & Sons Construction	29/05/2014	Malakal	Construction	Vehicle	3,200	11,500
Hanpa Quarry & Yard	28/05/2014		Construction	Vehicle	0	1,560
Public Works Ngaraard State	28/05/2014	Ngaraard	Construction	Vehicle	430	0
Public Works Ngachesar State	28/05/2014	Ngachesa	Construction	Vehicle	0	0
Asphalt Batching Plant	28/05/2014		Construction	Vehicle	2,500	0
Palau Public Works	27/05/2014	Malakal	Construction	Vehicle	1,700	2,700
NECO Construction	26/05/2014		Construction	Vehicle	8,700	1,250
WCTC Repair Shop	27/05/2014	T-Dock	Auto Repair	Vehicle	8,320	5,200
PIDC Vehicle	29/05/2014	Koror	Auto Repair	Vehicle	415	1,250
Masons Hardware	29/05/2014	Koror	Auto Repair	Vehicle	1,700	1,250
CT Auto Repair	27/05/2014	Airai	Auto Repair	Vehicle	2,500	6,200
High Speed Auto	27/05/2014		Auto Repair	Vehicle	0	1,700
J C Auto	27/05/2014		Auto Repair	Vehicle	0	0
G F Auto	27/05/2014	Ngesaol	Auto Repair	Vehicle	0	5,200
Lehns Auto	27/05/2014		Auto Repair	Vehicle	0	830
Midtown Service Station	26/05/2014		Auto Repair	Vehicle	17,700	4,500
Biib Bus Incorporation	26/05/2014		Auto Repair	Vehicle	830	1,250
Ace Hardware	29/05/2014	T-Dock	Multiple	Vehicle		16,650
Blue Bay	29/05/2014	Malakal	Oil supply	Vehicle	1,350	0
IP & E	29/05/2014	Malakal	Oil supply	Vehicle	1,150	0
Belau Transfer & Terminal	29/05/2014	Malakal	Port	Vehicle	1,650	415
Hawaiiin Belau Quarry	28/05/2014	Ngetmeduch	Quarry	Vehicle	5,000	2,900
PNQ Incorp	27/05/2014	Malakal	Quarry	Vehicle	2,500	6,900
Surangel & Sons Quarry	27/05/2014	Airai	Quarry	Vehicle	1,200	7,100

Appendix 3: PPUC Waste Oil Acceptance Policy

Palau Public Utilities Corporation

PO Box 1372
Oldiais Ngiraikelau Building
Koror, Republic of Palau 96940

Waste Oil Acceptance Policy

DISPOSAL PROCEDURES

Schedule: The Palau Public Utilities Corporation (PPUC) will accept waste oil from property owners, or their agents, whose property is within the Republic of Palau. Unless other arrangements are made, this material is to be delivered to the Malakal Power Plant Power complex located in Malakal, Koror for customers in Koror-Airai, and at Aimeliik Power Plant for customers in Babeldaob during regular business hours. Fees will apply. Waste Oil must be in 55 gallon drums. Any other containers will not be accepted by PPUC upon arrival at PPUC Facilities.

Regular Business Hours:

- 8:00am to 3:30pm Monday through Friday.
- National, State and Local holidays including weekends are not considered regular business hours unless prior arrangements are made with PPUC.
- A fee of \$80.00 per 55 gallon drum will be assessed as cost for collection and disposal.

Sign-in Procedures at Main Administration Building (Customer Service)

1. Prior to any disposal of waste oil at PPUC facilities, customers must first complete a Request (APPENDIX -1) form at PPUC Main Administration office.
2. The Request form states that, to the best of their knowledge, the material they wish to dispose of is clean waste oil, contaminated waste oil or is from an unknown source.
3. The Property owner or agent must indicate on this form the number of drums that will be delivered to PPUC facilities.
4. PPUC will be assessing a fee of \$80.00 per 55 gallon drum being deposited at PPUC facilities. This fee is to cover the cost of collecting and disposing of the waste oil.
5. After payment has been made an official receipt will be attached to the request form
6. PPUC Power Plant personnel will not accept any waste oil that is brought to PPUC facilities without a Request Form accompanied by a valid receipt.
7. Upon completion of the form and payment has been made, customers will then transport the waste oil to Malakal Power Plant for customers in Koror-Airai including Peleliu and Angaur and at Aimeliik Power Plant for customers in Babeldaob including Kayangel.

Sign-in Procedures at MPP or APP:

1. Upon arriving at the Malakal Power Plant (MPP) or Aimeliik Power Plant (APP) garage, any property owner, or their agent wishing to dispose of waste oil is required to check-in with PPUC authorized personnel including the Safety Officer and the Power Generation Manager or his designee.
2. Customers will present the Request form accompanied by a valid receipt to the authorized power plant personnel.
3. PPUC personnel will conduct inspection on the waste oil and the containers. PPUC will return waste oil if containers are not safe and secure.
4. ONLY 55 GALLON DRUMS ARE ACCEPTED AS APPROVED WASTE OIL CONTAINERS.
5. The property owner will be provided with a copy of a log sheet (Appendix-2) for their completion and signature.
6. Materials will not be accepted if they obviously contain foreign materials and debris including, but not limited to, solvents, gasoline or diesel fuel etc.

Disposition of Material: Waste oil that is logged in following the above procedure will be placed in one of the waste oil storage tanks within PPUC facilities after approval by the Safety Officer and PGD Manager. This material will subsequently be shipped off island or burned for heat recovery in accordance with National and State regulations.

REMEMBER TO LABEL HAZARDOUS WASTE CONTAINERS. CONTAINERS WHICH ARE UNIDENTIFIED CANNOT BE ACCEPTED FOR COLLECTION BY PPUC.

Procedures for containing Used Oil:

Businesses such as shops and other establishments generate a variety of used oil. These oils include: motor oil, heating oil, refrigerator oil, hydraulic oil, transformer oil, and lubricating oils. These oils are regulated by the Republic of Palau through the EQPB. Below outlines the proper procedure for managing these used oils.

- Collect used oil in PPUC/and or EQPB approved containers – ONLY USE 55 gallon drums.
- Different types of oil should not be co-mingled (i.e. don't mix refrigeration oil and motor oil.)
- Label containers with a used oil label. For more information on labeling see BELOW of this section.
- Complete label with the date used oil accumulation began and location information.
- Store containers in/on secondary containment such as a spill pallet.
- Keep container securely closed except for when adding or removing used oil.

- Transformer, mineral, and refrigerant oils must be disposed.
- Motor, hydraulic, and heating oils will be sent for recycling if free of PCBs.

Note: Oil filled equipment may contain oils that are contaminated with PCBs. Contact EQPB prior to disposing equipment at PPUC facilities. More information on PCBs and oil containing equipment is available from EQPB.

Contaminated waste oil or materials from unknown sources that are logged in or arrive at the Malakal Power Plant or any of PPUC Facilities outside of normal business hours will be accepted at the discretion of the PPUC supervising personnel. PPUC will not accept waste oil with the presence of debris or if the source is unknown; these will be returned at the discretion of PPUC.

The purpose of the following policy and procedures is to ensure that all hazardous waste, universal waste, and used oil are properly and safely managed from its generation through handling, storage, and preparation for transportation. The management of these wastes shall be conducted in accordance with all applicable local, state, and national laws and regulations.

Appendix 4: Palau Regulations (EQPB)

CHAPTER 2401-1 EARTHMOVING REGULATIONS

GENERAL PROVISIONS

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2401-1-02 Applicability
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2401-1-04 General Requirements
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GENERAL PROVISIONS

2401-1-01 Authority

These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board pursuant to the authority granted it by Title 24 Palau National Code. These regulations shall have the force and effect of law.

(Effective May 26, 1996)

2401-1-02 Applicability

These regulations shall apply to all earthmoving activities as defined herein that begin on or after the effective date of these regulations.

(Effective May 26, 1996)

2401-1-03 Definitions

As used herein, unless the context otherwise requires, the term:

(A) "Accelerated Erosion" means the removal of the surface of the land through the combined action of human activities and through the action of natural processes, at a rate greater than would result through the action of natural processes alone.

(B) "Accelerated Sedimentation" means the sedimentation resulting from the combined action of human activities and natural processes resulting from storms, heavy rains, and high winds at a rate greater than would result through the action of natural processes alone.

(C) "Board" or "EQPB" means the Republic of Palau Environmental Quality Protection Board or its authorized representative.

(D) "Chairman" means the Chairman of the Republic of Palau Environmental Quality Protection Board personally or his authorized representative.

(E) "Clearing" means the removal of vegetation, structures or other objects associated with a construction activity.

(F) "Conveyance Channel" means a channel other than an interceptor channel used for the conveyance of water through or around a project area.

(G) "Diversion Terrace" means a channel or dike constructed upslope of a project for the purpose of diverting storm water away from the unprotected slope.

(H) "Earthmoving" means any construction or other activity which disturbs or alters the surface of the land, a coral reef or bottom of a lagoon, including, but not limited to, excavations, dredging, embankments, land reclamation in a lagoon, land development, mineral extraction, ocean disposal, and the moving, depositing or storing of soil, rock, coral, or earth.

(I) "Embankment" means a deposit of soil, rock, gravel, sand or other materials, including dredged materials, deposited by man to hold back water or soil.

(J) "Erosion" means the natural process by which the surface of the land is worn away by the action of water, wind or chemical action.

(K) "Excavation" means but is not limited to, a cavity formed by quarrying, dredging, uncovering, displacing, or relocating soil, coral, or rock.

(L) "Filling" or "Fills" means any rock, soil, sand, gravel or other material, including dredged materials, deposited by man.

(M) "Interceptor Channel" means a channel or dike constructed across a slope for the purpose of intercepting storm water, reducing the speed of water flow, or diverting it to outlets where it can be disposed.

(N) "Land Development" means the construction, installing, placing, planting, or building of surface structures, land reclamation, navigation channels, harbors, utility lines, piers, shopping centers, causeways, golf courses, apartment complexes, hotels, schools, roads, parking areas, or any other similar activity.

(O) "Person" means the Republic of Palau, a state, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm, or company organized or existing under the laws of the Republic or of any state or country, a lessee or other occupant or property, or an individual, singly or as a group.

(P) "Sediment" means soils or other surface materials transported by water as the result of land erosion, or earthmoving activity, on a reef or in a lagoon, or excavation, or fill.

(Q) "Sedimentation" means the process by which sediment is deposited on the bottom of a body of water, including, but not limited to, rivers, streams, ponds, lakes, the bottom of lagoons or the tops of reefs.

(R) "Stage Construction" means the staging of construction activity so as to limit the amount of exposed and unstabilized area.

(S) "Sand Mining" means the taking of any rock, sand, gravel, coral or other material from any site including beaches, lagoons and reefs.

(T) "Sedimentation Retention Boom" means a watertight membrane suspended from floats and weighted at the bottom in water bodies arranged in a manner that will confine sediments to a local area.

(U) "Stabilization" means the proper placing, grading and/or covering of soil, rock or earth, including the use of vegetation, to ensure their resistance to erosion, sliding, or other movement.

(V) "Subdivision" means the division or re-division of a lot, tract, or parcel of land by any means into two or more lots, tracts, parcels or other division of land including changes in existing lot lines for the purpose, whether immediate or in the future, of lease, transfer of ownership, building or lot development.

(W) "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include salt water marshes, salt water swamps, freshwater marshes, freshwater swamps, and cultivated wetlands.

(Effective May 26, 1996)

EROSION AND SEDIMENTATION CONTROL

2401-1-04 General Requirements

(A) All earthmoving activities within the Republic of Palau shall be conducted in accordance with these regulations and in such a way as to prevent accelerated erosion and accelerated sedimentation.

(B) To accomplish the requirements set forth in Division A of this Section, all persons engaging in earthmoving activities shall design, implement and maintain erosion control measures which effectively prevent accelerated erosion and accelerated sedimentation and polluting of off-site areas.

(C) These erosion and sedimentation control measures must be set forth in a plan, as described in Sections 2401-1-05 thru 2401-1-07, inclusive, of this chapter, and must be (1) available at all times at the site of the project; and, (2) filed with the ROP EQPB.

(D) The applicant shall, upon request from the Board, demonstrate financial capability to complete the proposed project.

(Effective May 26, 1996)

2401-1-05 Erosion and Sedimentation Control Plan Preparation

The erosion and sedimentation control plan shall be prepared by a person trained and experienced in erosion and sedimentation control methods and techniques.

(Effective May 26, 1996)

2401-1-06 Erosion and Sedimentation Control Plan Requirements

The erosion and sedimentation control plan shall be prepared to prevent acceleration of erosion and sedimentation and shall consider all factors which contribute to erosion and sedimentation. The plan shall include, but is not limited to, the following:

(A) A project description giving a detailed narrative description of the project's purpose, scale, location, pre- and post- construction activities and other information as may be requested by the Board;

(B) A detailed site plan detailing all construction, landscaping, structures, and all project related activities. A plan shall be prepared for each stage of construction;

(C) A project construction schedule. Estimated dates for all stages of construction shall be included;

(D) The topographic and/or hydrographic features of the project area;

(E) The types, depth, slope, and area of the soils, coral and/or reef;

(F) The original state of the area as to plant and animal life;

(G) Whether any coral reef which may be affected by the earthmoving is alive or dead;

(H) The proposed alteration to the area;

(I) The amount of runoff from the project area;

(J) The staging of earthmoving activities;

(K) Temporary control measures and facilities for use during earthmoving activity;

(L) Permanent control measures and facilities for long term protection;

(M) Special provisions and control measures for periods of severe weather conditions; and,

(N) A maintenance program for the control facilities including disposal of materials removed from the control facilities or project area.

(Effective May 26, 1996)

2401-1-07 Additional Requirements for Marine-Related Earthmoving

If the project involves an earthmoving activity in a lagoon, or a reef, or any body of water, the plan shall show existing marine life populations as well as minimum and maximum turbidities, and other water quality parameters which may be required by the Board. The baseline study shall be made by a person

trained and experienced in aquatic biology and shall be completed prior to any earthmoving activity.

(Effective May 26, 1996)

2401-1-08 Control Measures and Facilities General Requirements

The erosion and sedimentation control measures and facilities set forth in these regulations shall be incorporated into all earthmoving activities unless the designer of the erosion and sedimentation control plan demonstrates to the Board and obtains the Board's written concurrence that alteration of these measures and/or facilities, or inclusion of other measures and/or facilities, will prevent accelerated erosion, accelerated sedimentation, other water quality degradation, or other environmental degradation.

(Effective May 26, 1996)

2401-1-09 Erosion and Sedimentation Control Measures

(A) Limiting Exposed Area. All earthmoving activities shall be planned and undertaken in such a manner so as to minimize the area of disturbed land, reef or lagoon.

(B) Containment of Underwater Sedimentation. All sedimentation resulting from underwater earthmoving activities shall be contained, confined and restricted by the best available means in such a manner that turbidities will be kept to a minimum.

(C) Velocity Control. All facilities for the conveyance of water around, through, or from the project site shall be designed to reduce the velocity of flow in the facilities to a speed that will not cause significant erosion. This velocity in no case shall exceed 1.5 ft/Sec.

(D) Stabilizing. Within a section or area of the project, all slopes, channels, ditches or any disturbed area shall be stabilized as soon as possible after the final grade or final earthmoving has been completed.

(E) Interim Stabilization. Where it is not possible to permanently stabilize a disturbed area immediately after the final earthmoving has been completed or where the activity stops for more than 14 days, interim stabilization measures shall be promptly implemented. No earthmoving activity shall be conducted during times of inclement weather unless directed by the Board to prevent further accelerated erosion or sedimentation.

(F) Containment of Fills and Reclaimed Land Within Bodies of Water or Tidal Zones. Before filling or land development within a body of water or tidal zone, adequate seawalls and/or breakwater facilities shall be constructed to safely contain the fill without failure and to prevent accelerated sedimentation.

(G) Collection of Runoff. All runoff from a project area shall be collected and diverted to facilities for removal of sediment.

(H) Solids Separation. Runoff from a project area shall not be discharged into the waters of the Republic of Palau without effective means to prevent sedimentation.

(Effective May 26, 1996)

2401-1-10 Erosion and Sedimentation Control Facilities

(A) Sediment Retention Booms. Sediment retention booms must be used to restrict accelerated sedimentation around earthmoving or earth disturbing activity on reefs or in lagoons in all cases, except when a finding has been made after actual demonstration that no facilities are needed to prevent accelerated sedimentation. Approval of use of alternate facilities or a finding that no facilities are necessary shall be made in writing by the ROP EQPB.

(B) Diversion Terrace.

(1) Diversion Terraces shall be constructed upgrade of a project area to convey runoff around the project area.

(2) Diversion Terraces shall have sufficient capacity to convey such runoff without overflowing. For temporary diversion the channel associated with the terrace shall have, at a minimum, capacity to convey 4.0 cubic ft/sec per acre of land tributary to it.

(3) Diversion Terraces shall be grassed or lined with erosion resistant materials to prevent accelerated erosion of the terrace and within any associated channel.

(4) Outlet structures shall be designed to reduce the discharge velocity to that which will not cause accelerated erosion, and shall be stabilized before use. This velocity shall not exceed 3 ft/sec.

(C) Seawalls and Breakwater Facilities. Seawalls and/or breakwaters to contain fill or reclaimed land shall be:

(1) sufficiently watertight to prevent accelerated sedimentation;

(2) well constructed on a solid foundation;

(3) constructed to a level at least two feet above the highest tide or flood level of historical knowledge; and,

(4) planned, designed and constructed under the direction of a person trained and experienced in building seawalls and breakwater facilities.

(D) Interceptor Channels.

(1) Interceptor channels may be used within a project area to reduce the speed of flow of surface runoff and thus prevent accelerated erosion.

(2) Water collected by interceptor channels shall be conveyed to sedimentation basins or to streams or other bodies of water.

(3) Outlets to vegetated area shall be designed to reduce the discharge velocity to that which will not cause accelerated erosion.

(E) Channels of Conveyance. All channels of conveyance shall be designed and/or grassed or lined with erosion resistant materials so as to reduce the

speed of flow of surface runoff so as not to cause accelerated erosion.

(F) Solids Separation Facilities.

(1) A basin for settling solids out of water shall be structurally sound and have sufficient capacity to hold the water that drains into the basin until the solids have settled out. A minimum capacity of 6000 cubic feet per acre of disturbed project area shall be the minimum capacity allowed.

(2) The basin shall be cleaned when the settling of solids has reduced the capacity of the basin by 25%.

(3) Outlet structures shall be designed to allow only adequately settled water to be discharged, and at a rate that will not cause accelerated erosion, or accelerated sedimentation.

(G) Hydraulic Dredged Fills. The discharge from pumps or hydraulic dredges used to construct fills shall be sufficiently treated and retained with dikes, levees, seawalls, or other structures for a sufficient period of time so that accelerated sedimentation will not take place in the waters which receive the effluent. Transmission pipelines transporting fill material shall be maintained in a watertight condition at all times of excavation and fill operation.

(H) Barges, Scows, or Vessels for Hauling Dredged Material. Barges, scows, and other vessels operating in waters of the Republic of Palau and used for hauling dredged material shall be sufficiently tight and secure that accelerated sedimentation will not occur by reason of leaking or premature dumping due to faulty mechanism.

(Effective May 26, 1996)

2401-1-11 Restoration

(A) Stabilization. Upon completion of the project, all areas which were disturbed by the project shall be stabilized so that accelerated erosion and/or accelerated sedimentation will be prevented.

(B) Interim Control Measures. Any erosion and sedimentation control facility required or necessary to protect areas from erosion during the stabilization period shall be maintained until stabilization is completed.

(C) Final Measures. Upon completion of stabilization, all unnecessary or unusable control facilities shall be removed, the areas shall be graded and the soils shall be stabilized.

(Effective May 26, 1996)

DISCHARGE PROHIBITIONS

2401-1-12 Proper Disposal

All removed material shall be disposed of in a manner as mandated herein and in related regulations of the Board and other applicable regulations of the Republic of Palau including, but not limited to Marine and Fresh Water Quality Regulations and the terms and conditions of any permit as approved by the Board.

(Effective May 26, 1996)

2401-1-13 Prohibited Discharges

Discharge of removed material, directly or indirectly, into wetlands, lagoons, reefs, streams, ocean, or other person's property is prohibited unless otherwise permitted by the Board.

(Effective May 26, 1996)

PERMITS

2401-1-14 Permit Required

(A) Any person who engages in an earthmoving activity within the Republic of Palau shall first obtain a permit from the Board for the proposed activity.

(B) Notwithstanding the permitting requirement set forth in Division A of this Section, no permit is required:

(1) Where the earthmoving activity is for plowing or tilling for agricultural purposes; or,

(2) Where the earthmoving activity is for, and at the site of, the construction and operation of a solid waste landfill site which is permitted under Solid Waste Management Regulations promulgated by the Board.

(C) Those persons that qualify under Division B of this Section to engage in earthmoving activities without a permit must otherwise comply with all provisions of this chapter.

(Effective May 26, 1996)

*(E) Any earthmoving activity subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

**(Amendment Effective March 12, 1999)*

2401-1-15 Application for Permit

(A) Application for permits shall be on forms provided by the Board and shall be submitted by the person undertaking the earthmoving activity. In the case of land development, the application shall be submitted by the land developer rather than the contractor or agent.

(B) Each application shall be accompanied by an erosion and sedimentation control plan and such other documents as the Board may require.

(C) Application shall be accompanied by a processing fee of \$100.00, for commercial projects and \$20 for private residences which is not refundable, except that no fee is required of the Government of the Republic of Palau.

(D) Applicants shall obtain all necessary clearances from the Historical Preservation Office, State Planning Commission and others as may be required by

agencies of the Republic of Palau or any political subdivision thereof prior to approval of the application by the Board.

(E) The Board may, prior to the issuance of a permit or to the denial of a permit, hold a public hearing to determine the facts upon which to base its decision. The Board shall hold a public hearing prior to the issuance or denial of a permit if requested by the applicant or other interested person(s).

(Effective May 26, 1996)

2401-1-16 Modification, Change or Revocation of Permits

(A) The Palau Environmental Quality Protection Board may, after taking into account any significant detrimental environmental degradation resulting from this permitted earthmoving activity, change or modify the conditions of the permit to minimize such degradation or partially, or in whole, revoke the permit should the Board determine such action to be justified and appropriate for environmental protection.

(B) The EQPB may change or modify the conditions of, suspend, or partially or in whole revoke, the permit if, after issuance of the permit, the Board determines that the information provided by the applicant proves to be false, incomplete or inaccurate.

(Effective May 26, 1996)

TRANSITION UNDER COMPACT OF FREE ASSOCIATION

2401-1-17 Definitions

Unless specifically indicated otherwise, or unless the context clearly requires a different meaning, for the purposes of Sections 2401-1-17 through 2401-1-25, inclusive.

(A) "Environmental Quality Protection Act" means the Republic of Palau Environmental Quality Protection Act, Republic of Palau Public Law 1-58, 24 PNC Section 101, et seq.

(B) "Federal Water Pollution Control Act" means the United States of America Federal Water Pollution Control Act Amendments of 1972, 82 Stat. 886, 33 U.S.C. 1251, et seq., as amended by the Clean Water Act of 1977, 91 Stat. 1566, 33 U.S.C. 1251, et seq., and the Water Quality Act of 1987, 101 Stat. 7, 33 U.S.C. 1251, et seq.

(C) "Pollutant Discharge Permit" means any Republic of Palau Environmental Quality Protection Board Pollutant Discharge Permit issued pursuant to Sections 2401-11-21, 2401-11-22, or 2401-11-36 the Republic of Palau Environmental Quality Protection Board Marine and Fresh Water Quality Regulations.

(D) "Section 401 Water Quality Certification" means certification from the Environmental Quality Protection Board for purposes of Section 401 of the Federal Water Pollution Control Act, under Sections 2401-11-44 through 2401-11-54, inclusive, of the Palau Environmental Quality Protection Board Marine and

Fresh Water Quality Regulations, that any discharge, as set forth in Section 401, will comply with sections 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act.

(E) "Section 404 Permit" means a permit issued by the United States Army Corps of Engineers, pursuant to Section 404 of the Federal Water Pollution Control Act.

(Effective May 26, 1996)

2401-1-18 Existing 404 Permits

All Section 404 Permits, and the terms and conditions thereof, in effect on September 29, 1994 for discharges within the territory of the Republic of Palau shall continue in effect after the implementation of the Compact of Free Association between the Republic of Palau and the United States of America and are hereby adopted as EQPB Permits as follows:

(A) Where a Palau EQPB Earthmoving Permit has already been issued by the Board with respect to a particular project, any and all Section 404 Permits and 401 Water Quality Certifications issued for the project continues in effect and is hereby adopted as part of each EQPB Earthmoving Permit issued for the project.

(B) Where no EQPB Earthmoving Permit has yet been issued by the Board with respect to a particular project, each and every Section 404 Permit and Section 401 Water Quality Certification shall continue as a Pollutant Discharge Permit.

(Effective May 26, 1996)

2401-1-19 Compliance with 404 Permits Required

All Persons to whom a Section 404 Permit has been issued shall continue to abide by the terms and conditions of each such Section 404 Permit until the permit is replaced by a Palau EQPB Earthmoving Permit issued subsequent to the implementation of the Compact of Free Association.

(Effective May 26, 1996)

2401-1-20 Compliance with 401 Certification Required

All Persons to whom a Section 401 Water Quality Certification has been issued shall continue to abide by the terms and conditions of each such Section 401 Water Quality Certification until the certification is replaced by a Palau EQPB Earthmoving Permit issued subsequent to the implementation of the Compact of Free Association.

(Effective May 26, 1996)

2401-1-21 Earthmoving Application Required

Within 90 days of the implementation of the Compact of Free Association, all persons shall apply to the EQPB for a new or revised Earthmoving Permit to include the terms and conditions of any Section 404 Permits and Section 401 Water Quality Certifications where the person:

- (A) Has been issued a Section 404 Permit or a Section 401 Water Quality Certification; and
- (B) Has not yet received nor filed with the Palau EQPB a complete application for a Palau EQPB Earthmoving Permit,

(Effective May 26, 1996)

2401-1-22 Continuation of Permitted Conduct

During the time period when the permit application required by the Section 2401-1-21 is pending before the Board, an activity authorized or required by the Section 404 Permit and the Section 401 Water Quality Certification may continue, notwithstanding any expiration date on the permit, to the extent such conduct is not otherwise prohibited by the laws and regulations of the Republic of Palau, including the requirement that a valid earthmoving permit be applied for and received from the Palau EQPB prior to the initiation of any earthmoving as that term is defined in Section 2401-1-03(H).

(Effective May 26, 1996)

2401-1-23 Resolution of Inconsistencies

If there exists any irreconcilable inconsistency in the requirements of any Section 404 Permit or Section 401 Water Quality Certification and the terms and conditions of any EQPB Earthmoving Permit or other requirement under the Environmental Quality Protection Act, the requirement that is most protective of the environment and the health and safety of the public shall be controlling, subject to any specific authorization the Board issues as to the appropriate resolution of any such irreconcilable inconsistency.

(Effective May 26, 1996)

2401-1-24 Termination of 404 Authority; Continuation of 401 Authority

Once the EQPB issues, after the implementation of the Compact of Free Association, a new or revised Earthmoving Permit incorporating the requirements of any Section 404 Permit or Section 401 Water Quality Certification, all authorizations to discharge fill materials under the Section 404 Permit shall cease. Any conduct authorized by any Section 401 Water Quality Certification, however, shall continue in full force and effect.

(Effective May 26, 1996)

2401-1-25 Compliance with Law and

EQPB Regulations Current as of January 8, 2013

Regulations Required

Nothing in these regulations shall be construed to allow any person to avoid the requirements of the Environmental Quality Protection Act, and the Regulations promulgated thereunder, including but not limited to, the Earthmoving Regulation's prohibition on undertaking any activity that disturbs or alters the surface of the land, a coral reef, or lagoon floor and the Marine and Fresh Water Quality Regulations' Sections 2401-11-21, 2401-11-22, and 2401-11-36 requirement that prior written authorization be obtained from the Board prior to the initiation of any project that may represent a new or increased source of either point-source or non-point source pollution.

(Effective May 26, 1996)

2401-1-26 (Reserved)

ENFORCEMENT

2401-1-27 Enforcement

Implementation, enforcement and court action pertaining to regulations contained herein shall be conducted according to the rights and procedures established in 24 PNC Sections 121 through 171, inclusive.

(Effective May 26, 1996)

RESPONSIBILITIES OF GOVERNMENT, DEVELOPMENT AND SUPPORT ENTITIES

2401-1-28 Notice to EQPB Required

Any person who provides financial assistance, equipment and/or materials, or permits to build shall notify the Board immediately upon receipt of an application for such assistance, equipment and/or materials, or building permit or other activity involving an earthmoving activity, by forwarding to the Board a copy of the application.

(Effective May 26, 1996)

2401-1-29 Prohibition on Release of Support Without an Earthmoving Permit

No person shall release funds, equipment and/or materials, or building permits to those engaged in earthmoving activities requiring an EQPB permit until the EQPB has issued the permit pursuant to these Regulations or has determined that no permit is required.

(Effective May 26, 1996)

MISCELLANEOUS PROVISIONS

2401-1-30 Severability

If any provision of these regulations or the application of any provision of these regulations to any person or circumstance is held invalid, the application of such provision to other persons or circumstances and the remainder of these regulations shall not be affected thereby.

(Effective May 26, 1996)

2401-1-31 Repealer

The regulations contained herein shall replace the Republic of Palau Environmental Quality Protection Board Earthmoving Regulations in effect in the Republic of Palau on the effective date of these regulations.

(Effective May 26, 1996)

CHAPTER 2401-11 MARINE AND FRESH WATER QUALITY REGULATIONS

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GENERAL PROVISIONS

2401-11-01 Authority

These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board pursuant to the authority granted it by Title 24 of the Palau National Code. These regulations shall have the force and effect of law and shall be binding on all persons and other entities subject to the jurisdiction of the Republic of Palau. The Board shall apply these

regulations to all marine and fresh water bodies in the Republic of Palau.

(Effective May 26, 1996)

2401-11-02 Purpose

It is the purpose of these regulations to:

- (A) Identify the uses for which the various waters of the Republic of Palau shall be maintained and protected.
- (B) Specify the water quality standards required to maintain the designated uses.
- (C) Prescribe regulations necessary for implementing, achieving, and maintaining the specified water quality, and to protect health, welfare and property, and to assure that no pollutants are discharged into these waters without being given the degree of treatment or control necessary to prevent pollution.

(Effective May 26, 1996)

2401-11-03 Policy

It is the policy of the Republic of Palau that:

- (A) The maintenance of water quality that will provide for the propagation of aquatic life and for recreation in and on the water is an historical and legitimate right of the people of the Republic of Palau.
- (B) The achievement of the water quality goals of the Republic of Palau is in the public interest and that achievement of these goals should not represent an unreasonable barrier to economic or social development.
- (C) Existing water uses and the level of water quality necessary to protect existing uses shall be maintained and protected. No further water quality degradation which would interfere with or become injurious to these existing uses is allowable. Existing uses are those actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.
- (D) Waters whose existing quality is less than the quality specified by these standards shall be improved to comply with these standards.
- (E) Waters whose existing quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water shall be maintained and protected unless and until the Board finds, after full opportunity for public participation and intergovernmental coordination, that allowing lower water quality is necessary to accommodate an important economic or social development in the area in which the waters are located. In no event, however, may degradation of water quality interfere with or become injurious to existing uses. Implementation of this policy shall be in accordance with Title 24 of the Palau National Code and the rules and regulations promulgated there under. [See also: Sections 2401-11-09(B) (6) and 2401-11-20(C)]
- (F) Before any new point source of pollution is allowed to lower the quality of water, the source shall be

required to meet and maintain the highest statutory and regulatory requirements. Before a non-point source is allowed to lower the water quality, the source shall establish and use the best, cost effective, and reasonable management practices.

(G) To the extent practicable, all new point sources of pollution shall not discharge into near-shore or fresh surface waters.

(H) There shall be no direct or indirect discharge of sewage or other waste into any planned or intended ground or surface source of drinking water.

(I) All sewage and waste shall receive the degree of treatment necessary to protect the beneficial uses of waters of the Republic of Palau before discharge.

(J) In no event shall there be a degradation of water quality which shall cause the water quality to fall below that necessary to protect the uses of the water for the propagation of aquatic life and for recreation in and on the water.

(K) Outstanding national resource waters be protected in a pristine state.

(Effective May 26, 1996)

2401-11-04 Definitions

(A) "Board" or "EQPB" means the Republic of Palau Environmental Quality Protection Board or its authorized representative.

(B) *"Buffer Zone" shall mean a strip of land in permanent vegetation adjacent to State waters or waters of Palau, designed to intercept pollutants, control erosion and manage other environmental concerns.**

(C) "Chairman" means the Chairman of the Republic of Palau Environmental Quality Protection Board personally or his authorized representative.

(D) "Coastal Waters" means "near-shore waters", "off-shore waters" and those brackish, fresh, and salt waters that are subject to ebb and flow of the tide.

(E) "Dilution Ratio" as used in Section 2401-11-32(A)(6) is the ratio of entrained water to quantity of discharged water at the plume centerline after initial dilution.

(F) *"Freshwater Lake" shall mean any body of fresh water that has permanent open water with a surface area that is more than an quarter of an acre, excluding man-made ornamental lakes or ponds and all types of pollution treatment lagoons.**

(G) "Groundwater" means any and all water found beneath the earth whether in confined or unconfined areas.

(H) *"High Tide Line" shall mean the line delineating the maximum height reached by the rising tide on a periodic basis, excluding unexpected variations in the high tide line resulting from storm surges. In the absence of actual data, the high tide line shall be determined by the deposit of debris on the shore, other physical markings or characteristics, vegetation lines, tidal gauges or other suitable means.**

(I) "Initial Dilution" means the dilution that the wastewater has achieved with the receiving water at

the centerline of the mixing zone as defined in Division I below where the mixture surfaces or the density of the mixture becomes equal to the density of the surrounding receiving water. The "initial dilution" may be calculated by using the procedure in Users Guide and Documentation for Outfall Plume Model D.J. Baumgartner. D.S. Trent and K.V. Byram, Working Paper #80, EPA, Pacific Northwest Water Laboratory May 1971. (Available by writing National Technical Information Service 5285 Port Royal Road, Springfield, Virginia 22151, Order Number NTISPB 204-557)

(J) "License" or "Permit" means any license or permit granted by an agency of the National Government to conduct any activity which may result in any discharge into the waters of the Republic of Palau.

(K) "Licensing or Permitting Agency" means any agency of the National Government to which application is made for a license or permit and which has the authority to issue a license or permit.

*(L) "Mangroves" shall mean forested areas where the soils are tidally flooded with seawater or a mixture of fresh water and seawater.**

(M) "Mixing Zone" means a defined area around a point source in which specific water quality criteria may be revised in accordance with Sections 2401-11-30 through 2401-11-36, inclusive of these regulations. A zone of mixing is the volume of water near the point of discharge within which the waste immediately mixes with ocean water due to the momentum of the waste discharge and the difference in density between the waste and the receiving

(N) "Natural" means free of substances or conditions or a combination of both attributable to human activities.

(O) "Natural Condition" or "Naturally Occurring" means that state of water quality that would exist at a specified time and place in the absence of human activities.

(P) "Near-Shore Waters" means those salt waters lying within a defined reef area or those salt waters up to 1,000 feet off-shore where there is no defined reef area.

(Q) "Non-Point Source" means any origin from which pollutants emanate in an unconfined and un-channeled manner including but not limited to surface runoff and leachate seeps.

(R) "Off-Shore Waters" means all coastal waters beyond the limit defined for "near-shore" waters.

*(S) "Ordinary High Water Mark" shall mean that line upon the shore or bank established by fluctuations of water and indicated by physical characteristics, such as a clear natural line impressed on the bank, destruction of terrestrial vegetation, the presence of litter or debris, or other appropriate means.**

(T) "Outstanding National Resource Waters" means the waters of national spawning grounds, preserves, and waters of exceptional recreational or ecological significance.

(U) "Person" means the Republic of Palau, a state, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm or company organized or existing under the Laws of Palau or of any state or country, a lessee or other

occupant of property, or any individual, acting singly or as a group.

(V) "Point Source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, vessel or other floating craft from which pollutants are or may be discharged.

(W) "Pollutant" means but is not limited to dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical waste, biological material, radioactive materials, heat, wrecked or discarded equipment, rock, sand, and industrial, municipal and agricultural waste.

(X) "Pollutant Discharge" means either a point source or non-point source of pollutant discharge.

(Y) "Pollutant Discharge Permit" means any Republic of Palau Environmental Quality Protection Board Pollutant Discharge Permit issued pursuant to Sections 2401-11-21 through 2401-11-36, inclusive, of the Republic of Palau Environmental Quality Protection Board Marine and Fresh Water Quality Regulations.

(Z) "Stream" shall mean a flowing body of fresh water that persists throughout most of the year, except under conditions of drought, and has a visually-defined bed and bank or "ordinary high water mark."*

(AA) "Surface Water" means any water as found on the surface of the earth or under the influence of run off or other water.

(BB) "Swamp Forest" shall mean a forest that occurs where soils are flooded most of the year with fresh or slightly brackish water.*

(CC) "Undue Hardship" shall mean that the owner of the land has been denied all beneficial uses of the property that includes the buffer zone.*

(DD) "Water Quality Certification" means a statement which asserts that a proposed discharge activity will not violate applicable water quality standards.

(EE) "Water Quality Standards" means standards established for any and all waters located within the Republic of Palau.

(FF) "Wetlands" means those areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include saltwater swamps, freshwater/marshes, and cultivated wetlands. These waters shall be classified as surface water.

(Effective May 26, 1996)

*(Amendment Effective September 15, 1999)

WATER USE CLASSIFICATION

2401-11-05 Classification of Coastal Water Uses

Coastal waters are classified in accordance with uses to be protected in each class as follows:

(A) Class AA Waters.

(1) The uses to be protected in this class of water are oceanographic research, the support and propagation

of shellfish and other marine life, conservation of coral reefs and wilderness areas, compatible recreation and other aesthetic enjoyment.

(2) It is the objective that this class of waters remain as near to their natural state as possible with an absolute minimum of pollution from any source.

(3) To the extent possible, the wilderness character of such areas shall be protected. No point source discharge will be permitted in these waters, nor will destruction of reefs, aquatic habitats or other resources be permitted.

(4) The classification of any water areas as Class AA shall not preclude other uses of such waters compatible with these objectives and in conformance with the standards applicable to them.

(B) Class A Waters.

(1) The uses to be protected in this class of waters are recreational (including fishing, swimming, bathing, and other water contact sports), aesthetic enjoyment, and the support and propagation of aquatic life.

(2) It is the objective that in this class of waters, use for recreational purposes and aesthetic enjoyment shall not be limited in any way.

(3) Class A waters shall be kept clean of any trash, solid materials and oil, and shall not act as receiving waters for any effluent which has not received the highest degree of treatment or control practicable under existing technological and economic conditions and shall be compatible with the standards established for this class.

(C) Class B Waters.

(1) The uses to be protected in this class of waters are small boat harbors, commercial and industrial shipping, bait fishing, compatible recreation, over-water commercial or residential structures for recreational or domestic use*, the support and propagation of aquatic life, and aesthetic enjoyment.

(2) It is the objective for this class of waters that discharge of any pollutant be controlled to the maximum extent possible and that sewage and industrial effluent receive the highest degree of treatment practicable under existing technological and economic conditions, and shall be compatible with the standards established for this class.

(3) The Class B designation should apply only to a limited area next to boat docking facilities. *No coastal areas with a coastal mangrove fringe greater than 50 feet in width shall be classified as Class B waters after the effective date of this amendment.**

(4) The rest of the water area in such bay or harbor not falling within the area identified in the previous paragraph shall be Class A unless given some other specific designation.

(Effective May 26, 1996)

*(Amendment Effective May 18, 1998)

2401-11-06 Classification of Fresh Water Uses

Fresh waters are classified in accordance with the uses to be protected as follows:

(A) Class 1 Waters.

(1) The uses to be protected in this class of waters are drinking water supply, food processing, the support and propagation of aquatic life, and compatible recreation.

(2) It is the objective that this class of waters remain in as near their natural state as possible with an absolute minimum of pollution from any source. To the extent possible, the wilderness character of such areas shall be protected. Waste discharge into these waters is prohibited.

(B) Class 2 Waters.

(1) The uses to be protected in this class of waters are bathing, swimming, the support and propagation of aquatic life, compatible recreation, and agricultural water supply.

(2) It is the objective for this class of waters that their use for recreational purposes, propagation of fish and other aquatic life and agricultural and industrial water supply not be limited in any way. Such waters shall be kept clean of trash, solid waste materials and oils and shall not act as receiving waters for any effluent which has not received the highest degree of treatment or control practicable under existing technological and economic conditions, and shall be compatible with the standards established for this class.

(Effective May 26, 1996)

2401-11-07 Classification of Groundwater

(A) Class I: Special Groundwater are those that are highly vulnerable to contamination because of the hydrological characteristics of the areas under which they occur and that are also characterized by either of the following two factors:

(1) Irreplaceable, in that no reasonable alternative source of drinking water is available to substantial populations; or

(2) Ecologically Vital, in that the aquifer provides the base flow for a particularly sensitive ecological system that, if polluted, would destroy a unique habitat.

(B) Class II: Current and potential sources of drinking water and waters having other beneficial uses and all other groundwater that are currently used or are potentially available for drinking water or other beneficial use.

(C) Class III: Groundwater not considered potential sources of drinking water and of limited beneficial uses are groundwater that are heavily saline, with total dissolved solids levels over 10,000 mg/l or are otherwise contaminated beyond levels that allow cleanup using methods reasonably employed in public water system treatment. The groundwater also must not migrate to Class I or II groundwater or have a discharge to surface water that could cause degradation.

(Effective May 26, 1996)

2401-11-08 Classification of Groundwater Areas

(A) Class I Groundwater Areas: All sources of fresh groundwater on all islands whether publicly or privately owned, used or potentially used, for domestic, culinary or food processing purposes.

(B) Class II Groundwater Areas: All fresh groundwater not included in Class I or Class III.

(C) Class III Groundwater Areas: All groundwater not considered potential sources of drinking water and of limited beneficial use which are heavily saline, with total dissolved solids levels over 10,000 mg/l, or which are otherwise contaminated beyond levels that allow cleanup using methods reasonably employed in public water system treatment.

(Effective May 26, 1996)

WATER QUALITY STANDARDS

2401-11-09 Basic Criteria Applicable to All Waters

(A) All waters shall be capable of supporting desirable aquatic life and shall be suitable for recreation in and on the water.

(B) In furtherance of the goal set forth in Division A of this Section, all waters shall be:

(1) Free of visible floating materials, oils, greases, scum and other floating matter attributable to human activities;

(2) Free from materials attributable to sewage, industrial waste or other human activities that produce visible turbidity or settle out to form deposits;

(3) Free from materials attributable to sewage, industrial waste or other human activities that produce objectionable color, odor or taste directly or by chemical or biological action with the water or the life forms in the water;

(4) Free from substances attributable to human activities that induce undesirable aquatic life or degrade the indigenous biota;

(5) Maintained free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analysis of species diversity, population density, growth anomalies, bioassay of appropriate duration or other appropriate methods as specified by the Board. The survival of aquatic life in waters subjected to waste discharge or other controllable water quality factors shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, latest edition. As a minimum, compliance with this objective as stated in the previous sentence shall be evaluated with a ninety-six (96) hour bioassay; and,

(6) The Board shall apply natural background levels in place of specified water quality criteria standards if natural background water quality is better than that

specified in other provisions of the standards in order to preserve the water quality found in the natural state to prevent the degradation of natural conditions and implement the anti-degradation provisions in Section 2401-11-03. [See: Section 2401-11-20(C)].

(C) All waters shall be protected from introduction of excess sediment and nutrients, as well as other pollutants, through the use of buffer zones.

(1) The minimum buffer zones for all freshwater lakes, streams, and swamp forest shall be (60) feet.

(2) The minimum buffer zone for all coastal waters and mangroves shall be sixty (60) feet.

(3) The buffer zone shall be measured as follows:

(i) The width of the buffer zones for freshwater lakes, streams, and swamp forest shall be measured from the ordinary high water mark on the shore or stream bank to the point sixty (60) feet distant on a horizontal plane. The edge of the buffer zone shall be the point on the surface of the land perpendicular to the point measured on the horizontal plane, as depicted in Figure 1.

(ii) The width of the buffer zones for coastal waters and mangroves shall be measured from the high tide line to the point sixty (60) feet distant on a horizontal plane. The edge of the buffer zone shall be the point on the surface of the land perpendicular to the point on the horizontal plane, as depicted in Figure 1.

(4) Earthmoving activities, as defined in the Earthmoving Regulations, Chapter 2401-01-03(H), including agriculture, forestry, and any form of construction, building, improvement or maintenance, the use of pesticides and fertilizers, and the clearing or burning of any vegetation are prohibited in all buffer zones, except as stated in sections (5) and (6) below.

(5) Building of single family residential structures in buffer zones surrounding coastal waters and mangroves, but not in buffer zones for freshwater lakes, streams or swam forest, shall be permitted, provided that all of the following conditions are met;

(i) Only single family residences shall be allowed. No apartments, hotels, or any other commercial structures shall be permitted;

(ii) Clearing of vegetation in the buffer zone will be limited to the smallest area necessary to construct house and allow human access to the dwelling;

(iii) The size of the house and all appurtenant structures shall be limited to a total ground area of 1,200 sq. feet, and shall be no more than two stories in height;

(iv) All access roads or trails within the buffer zone shall be constructed and maintained in accordance with the best management practices developed by the Board;

(v) The density of residential housing within the buffer zone shall not exceed on single family residence per acre of buffer zone; and,

(vi) The residence, appurtenant structures, and area cleared shall in no event be located within 25 ft of the coastal waters or mangrove.

(6) Any applicant may request the Board to grant and exemption or variance from the buffer zone requirements. The Board may grant such a request

only if (1) the Board finds the use proposed necessary and unavoidable for the legitimate use of property either outside the buffer zone, or within the buffer zone but being used pursuant to the provisions of section 5, supra, (for example, access roads, trails, and stream crossings); (2) enforcement of these provisions will result in unnecessary and undue hardship to the applicant owing to special conditions related to the land itself; or (3) the applicant establishes by reference to established scientific principles and/or findings that the application of the buffer zone requirement is unwarranted in terms of preventing actual or potential environmental degradation of marine and fresh water quality.

(7) Any work permitted in buffer zones, such as access roads, trails and stream crossings shall be performed in accordance with the best management practices established by the Board.

(8) Uses of buffer zones for other than their intended purpose as set forth in these regulations shall not be extended or enlarged after the effective date of these regulations. If nonconforming use of a buffer zone is discontinued or abandoned for a period of six months, the future use of the buffer zone shall only be in accordance with these regulations.

(9) As part of its permitting process, the Board may decide to modify these buffer zones requirements based on its review of the relevant physical and ecological factors, such as, but not limited to, the slope of the property, the proposed use upland of protected waters, the type and condition of vegetation in the buffer zone, the characteristics of the soils in the area, the sensitivity of the affected ecosystem and similar factors.*

(Effective May 26, 1999)

*(Amendment Effective September 15, 1999)

2401-11-10 Microbiological Standards

STANDARD	APPLICABLE CLASSES
(A) The median total or fecal coliform bacteria count shall not exceed 70/100ml for any 10 consecutive samples nor shall any single sample exceed 230/100 ml.	AA and 1
(B) Fecal Coliform count shall not exceed a geometric mean of 200/100ml for any 10 consecutive samples nor shall any single sample exceed 400/100 ml.	A, B and 2

(C) Enterococci count shall not exceed a geometric mean of 33/100ml for any 5 samples in a given 30 day period nor shall any single sample shall exceed 60/100ml.	AA and A
(D) In areas where shellfish are harvested for human consumption, the micro-biological standards for Class AA and 1 Waters shall apply.	A, B and 2

(Effective May 26, 1996)

2401-11-11 pH Standards

STANDARD	APPLICABLE CLASSES
(A) pH variation shall be within 7.7 and 8.5 pH units.	AA, A and B
(B) pH variation shall not be greater than 0.2 pH units from natural conditions; but not lower than a pH of 6.5 or higher than a pH of 8.5 from other than natural causes.	1
(C) pH variation shall not be greater than 0.5 pH units from natural conditions; but not lower than a pH of 6.5 or higher than a pH of 8.5 from other than natural causes.	2

(Effective May 26, 1996)

2401-11-12 Nutrient Material

STANDARD	APPLICABLE CLASSES
(A) The ratio of total nitrogen to total phosphorus concentration shall be within:	

(1) 11.1 - 27.1	AA and A
(2) 6.1 - 18.1	B
(3) 10% variation of the naturally occurring ratio	1 and 2
(B) The concentration of total nitrogen and total phosphorus shall not vary by more than 10% from the natural conditions.	All Waters
(C) Except for concentrations attributable to natural causes nutrient concentration shall not exceed:	
(1) Total Phosphorus	
(a) 0.025 mg/l as P	AA and A
(b) 0.500 mg/l as P	B
(c) 0.200 mg/l as P	1 and 2
(d) 0.050 mg/l as P	Fresh Waters entering lakes or reservoirs (at a point of entry) and lakes and reservoirs
(2) Total Nitrogen	
(a) 0.400 mg/l as N	AA and A
(b) 0.800 mg/l as N	B
(c) 0.750 mg/l as N	1
(d) 0.500 mg/l as N	2

(Effective May 26, 1996)

2401-11-13 Dissolved Oxygen

STANDARD	APPLICABLE CLASSES
(A) Dissolved oxygen concentrations shall not vary by more than 25% from natural conditions.	All Waters
(B) Except for concentrations attributable to natural causes dissolved	

oxygen concentration shall not be less than:	
(1) The greater of 6.0 mg/l, 75% or Saturation	AA and 1
(2) 5.0 mg/l	A and 2
(3) 4.5 mg/l	B

(Effective May 26, 1996)

2401-11-14 Total Dissolved Solids, Salinity, Currents

<u>STANDARD</u>	<u>APPLICABLE CLASSES</u>
No change in channels, basin geometry or water influx shall be made which would cause permanent changes in isohaline patterns of more than 10% from natural conditions or change in salinity outside the range of 29-35 parts per thousand or which would otherwise adversely affect the indigenous biota and natural sedimentary patterns.	All Waters

(Effective May 26, 1996)

2401-11-15 Temperature

<u>STANDARD</u>	<u>APPLICABLE CLASSES</u>
Temperature shall not vary by more than 1.5 degree Fahrenheit (0.9 degree Celsius) from the natural conditions in marine and fresh waters.	All Waters

(Effective May 26, 1996)

2401-11-16 Turbidity

<u>STANDARD</u>	<u>APPLICABLE CLASSES</u>
Turbidity as measured by Nephelometric Turbidity Units (NTU) shall not be:	
(A) Greater than 1 NTU	AA and A

(B) Greater than 2 NTU	B
(C) Greater than 5% above natural conditions	1
(D) Greater than 10% above natural conditions	2

(Effective May 26, 1996)

2401-11-17 Radioactive Materials

<u>STANDARD</u>	<u>APPLICABLE CLASSES</u>
(A) The concentration of radioactive materials in water shall not exceed 1/30th of the maximum permissible limits established for continuous occupational exposure given in the latest edition of the <i>U.S. National Bureau of Standards Handbook No. 69</i> .	All Waters
(B) No radio nuclides shall be present in amounts that would exceed the maximum permissible levels established in the Republic of Palau Public Water Supply Regulations.	All Waters
(C) The concentration of radioactive materials in water shall not result in the accumulation of radioactivity in plants or animals that would result in a hazard to humans or aquatic life.	All Waters

(Effective May 26, 1996)

2401-11-18 Oil and Petroleum Products

<u>STANDARD</u>	<u>APPLICABLE CLASSES</u>
The concentration of oil and petroleum products shall not:	

(A) Be detectable as a visible film sheen or discoloration of the surface or cause an objectionable odor.	All Waters
(B) Cause tainting of fish or other aquatic life, be injurious to the indigenous biota, or cause an objectionable taste in drinking water.	All Waters
(C) Form an oil deposit on beaches or shorelines or on the bottom of a body of water.	All Waters

(Effective May 26, 1996)

2401-11-19 Toxic Substances

Marine and fresh water standards for toxic substances are set forth in Appendix A to the these Marine and Fresh Water Quality Regulations. The Board may amend Appendix A from time to time to add additional substances or modify the standards for particular substances as the Board deems appropriate.

(Effective May 26, 1996)

2401-11-20 General Conditions

(A) All methods of sample collection, preservation, and analysis used to determine compliance with these standards shall be in accordance with those specified in the latest edition of *Standard Methods for the Examination of Water and Wastewater*, by the American Public Health Association or methods specified by the United States Environmental Protection Agency in 40 CFR Section 136 et. seq., as appropriate. Samples should be collected at approximately equal intervals and under those conditions of tide, rainfall, and time of day when pollution is most likely to be the greatest or at a maximum level.

(B) Whenever water quality standards are exceeded, samples shall be taken at frequent intervals to be determined by the Board according to the severity of the violation.

(C) Whenever natural conditions are of a better quality than an assigned water quality criteria, the natural conditions shall constitute the water quality criteria. [See also: Sections 2401-11-03(E) and 2401-11-09(B)(6)].

(D) Whenever two numeric criteria are in conflict, the more stringent criteria shall constitute the water quality criteria.

(E) Pollutant discharge to either surface or ground waters shall be controlled so as to protect not only the receiving water but also those waters into which the receiving waters may flow.

(Effective May 26, 1996)

IMPLEMENTATION MEASURES

2401-11-21 Approval Required for New or Increased Pollutants

(A) It shall be a violation of these regulations for any person to initiate any project which may represent a new or increased source of pollution, either point source or non-point source, without first obtaining written approval of the EQPB.

(B) It is incumbent upon the person initiating the project to demonstrate to the EQPB that the project will not directly or indirectly impair any beneficial uses of the affected waters.

(C) The EQPB may place conditions of the construction and/or operation of the project as necessary to mitigate or eliminate any adverse water quality impacts associated with the project.

(D) The EQPB may withhold approval for any project until the project has received all necessary permits and clearances or has demonstrated that such clearances will be obtained at the appropriate time.

(Effective May 26, 1996)

2401-11-22 Discharge Permit Required

Any point source of discharge shall be in violation of these regulations unless the discharge operator has received a Pollutant Discharge Permit from the EQPB.

(Effective May 26, 1996)

2401-11-23 Written Approval for Hazardous Substances

It shall be in violation of these regulations for any person to store, dispose of or allow to accumulate any hazardous substance in such a manner that the substance may enter the surface or ground waters of the Republic of Palau without first obtaining written approval of the EQPB. Such substances include, but are not limited to petroleum products, pesticides, radioactive substances, and toxic chemicals. The EQPB may require persons handling hazardous substances to implement measures to reduce the possibility of contaminating the surface or ground waters of the Republic of Palau.

(Effective May 26, 1996)

2401-11-24 Response to Spills

(A) In the event of an accidental spill or discharge of hazardous substances, the responsible person shall immediately notify the EQPB and take all reasonable

measures to contain the material so that it will not contaminate the surface or ground waters of the Republic of Palau.

(B) Failure to notify the EQPB within 24 hours and take reasonable mitigation measures shall also constitute a violation of these regulations.

(Effective May 26, 1996)

TRANSITION UNDER COMPACT

2401-11-25 Definitions

Unless specifically indicated otherwise, or unless the context clearly requires a different meaning, for the purposes of Sections 2401-11-25 through 2401-11-29, inclusive:

(A) "NPDES Permit" means any USEPA National Pollutant Discharge Elimination System Permit issued by the USEPA under the authority of the U.S. Federal Water Pollution Control Act Amendments of 1972, 82 Stat. 886, 33 U.S.C. 1251, et seq., as amended by the Clean Water Act of 1977, 91 Stat. 1566, 33 U.S.C. 1251, et seq., and the Water Quality Act of 1987, 101 Stat. 7, 33 U.S.C. 1251, et seq.

(B) "USEPA" means the United States Environmental Protection Agency.

(Effective May 26, 1996)

2401-11-26 Continuation of NPDES Permits

(A) All NPDES Permits, and the terms and conditions thereof, in effect on September 29, 1994 for discharges within the territory of the Republic of Palau shall continue in effect after the implementation of the Compact of Free Association between the Republic of Palau and the United States of America and are hereby adopted as EQPB Pollutant Discharge Permits.

(B) All holders of NPDES Permits and those that discharge pollutants, whether directly or indirectly, whether from point-sources or non-point-sources must continue to abide by the terms and conditions of the NPDES permits (as adopted as EQPB Pollutant Discharge Permits) until they are replaced by a subsequent EQPB Pollutant Discharge Permit.

(Effective May 26, 1996)

2401-11-27 Palau Discharge Permit Application Required

All holders of NPDES Permits and those that discharge pollutants, whether directly or indirectly, whether from point-sources or non-point-sources shall, within 90 days of the implementation of the Compact of Free Association, apply to the EQPB for a new or revised Pollutant Discharge Permit.

(Effective May 26, 1996)

2401-11-28 Continuation of Permitted Conduct

During the time period when such a permit application is pending before the EQPB, the discharges authorized by the NPDES Permit (as adopted as an EQPB Pollutant Discharge Permit) may continue, notwithstanding any expiration date on the permit. Once, however, the EQPB issues a new Pollutant Discharge Permit as a result of the application required by Section 2401-11-27, all authorizations to discharge pollutants under the NPDES Permit (as adopted as an EQPB Pollutant Discharge Permit) shall cease.

(Effective May 26, 1996)

2401-11-29 Compliance with Law Required

Nothing in these regulations shall be construed to allow any person to avoid the requirements of the Environmental Quality Protection Act, and the Regulations promulgated there under, including but not limited to the Sections 2401-11-21 and 2401-11-22 of the Marine and Fresh Water Quality Regulations requirement that prior written authorization and appropriate permits be obtained from the EQPB prior to the initiation of any project that may represent a new or increased source of either point-source or non-point source pollution.

(Effective May 26, 1996)

MIXING ZONES

2401-11-30 Applicability and Limits

(A) The water quality standards and criteria set forth in Sections 2401-11-9 through 2401-11-19 may apply within a mixing zone unless specific alternative criteria have been approved by the Board.

(B) Mixing zones will not be granted in lieu of reasonable control measures to reduce point source pollutant discharges but will be granted to compliment the applicable controls.

(Effective May 26, 1996)

2401-11-31 Permit Required

(A) All new point source discharges beginning after December 1, 1990 shall apply for an EQPB Pollutant Discharge Permit. This permit shall be required even if it can be demonstrated that the discharge will meet the applicable water quality standards at the point of discharge.

(B) It shall be a violation of these regulations for any person to commence discharging from a new point or non-point source without first obtaining all required permits.

(Effective May 26, 1996)

(C) All point and non-point discharges subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.*

**(Amendment Effective March 12, 1999)*

2401-11-32 Mixing Zone Application

(A) Any application for a zone of mixing must contain the following:

- (1) Evidence that the EQPB Pollutant Discharge Permit has been applied for and will be obtained;
- (2) A description of the waste to be discharged including flow rate and pollutant types and quantities;
- (3) The location of the discharge and a description of the disposal methods (e.g. outfall size, number and type of diffusers, etc.);
- (4) Evidence that the concentration of toxic substances present in the discharge will not violate water quality standards for toxic substances;
- (5) Identification of those substances for which the mixing zone is required;
- (6) A certification for each substance identified in these regulations that after initial mixing the concentration of the substance will not exceed the applicable water quality standard. The following equation shall be used to calculate concentration after initial dilution:

$$C_f = \frac{C_c + C_b (D_x)}{(D_x + 1)}$$

C_f = Concentration after mixing
 C_c = Effluent concentration (instantaneous maximum)
 C_b = Background concentration
 D_x = Dilution ration

- (7) Evidence that the basic water quality standards (Section 2401-11-9 through 2401-11-19, inclusive) will not be violated within the mixing zone;
 - (8) A proposed schedule of effluent and receiving water monitoring to determine compliance with the proposed mixing zone;
 - (9) A technical justification why a mixing zone should be permitted; and,
 - (10) Any other information required by the Board.
- (B) The mixing zone shall be defined under those conditions of tide, wind, runoff, density stratification and discharge that would result in the minimum dilution.

(Effective May 26, 1996)

2401-11-33 Existing Discharges

All existing point source discharges must apply to the Board for a mixing zone or demonstrate that one is not required not later than June 1, 1992. The application procedure is identical to the one for new sources.

(Effective May 26, 1996)

2401-11-34 False or Misleading Information Prohibited

It shall be in violation of these standards for any person to knowingly present false or misleading information to the Board in an application for a mixing zone.

(Effective May 26, 1996)

2401-11-35 Mixing Zone Application Review

(A) In reviewing a mixing zone application the Board will consider:

- (1) Present and anticipated uses of the water body.
 - (2) Whether an adequate zone of passage will exist for the movement of aquatic life.
 - (3) The proximity of other mixing zones.
 - (4) Whether the granting of a mixing zone is in the public interest.
- (B) The Board may request additional information from the applicant that is deemed relevant to the Board's determination.

(Effective May 26, 1996)

2401-11-36 Mixing Zone Certification Determination

(A) The Board may either approve, conditionally approve or disapprove a mixing zone application after conducting a public hearing on the application. The Board will notify the applicant in writing of its determination. The notification will include, but is not limited to:

- (1) The duration of the mixing zone; and,
 - (2) Any conditions placed upon the Board's approval of the application. Conditions may include, but are not limited to:
 - (a) Effluent and receiving water monitoring and reporting requirements;
 - (b) A timetable for the reduction or elimination of the discharge; and,
 - (c) The parameters for which the mixing zone is being granted and the alternative criteria that will apply within the mixing zone.
- (B) If the Board disapproves a mixing zone application, it will notify the applicant, in writing, of the reasons for the disapproval.

(Effective May 26, 1996)

MARINE SANITATION DEVICES

2401-11-37 Definitions

Unless specifically indicated otherwise, or unless the context clearly requires a different meaning, for the purposes of Sections 2401-11-37 and 2401-11-38:

- (A) "Discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

(B) "Federal Water Pollution Control Act" means the U.S. Federal Water Pollution Control Act Amendments of 1972, 82 Stat. 886, 33 U.S.C. 1251, et seq., as amended by the Clean Water Act of 1977, 91 Stat. 1566, 33 U.S.C. 1251, et seq., and the Water Quality Act of 1987, 101 Stat. 7, 33 U.S.C. 1251, et seq.

(C) "Marine Sanitation Device" includes any equipment for installation on board a vessel and which is designed to receive, retain, treat, or discharge sewage and any process to treat such sewage.

(D) "Sewage" means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes.

(E) "Vessel" includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on any waters of or within the Republic of Palau.

(F) Other terms shall have the Definitions set forth in 40 CFR Section 140.1 and 33 CFR Section 159.3

(Effective May 26, 1996)

2401-11-38 Marine Sanitation Device Requirements

All Marine Sanitation Device requirements in effect within the Republic of Palau on September 29, 1994, as set forth in 33 CFR Part 159 and 40 CFR Part 140 shall continue in effect after the implementation of the Compact of Free Association between the Republic of Palau and the United States of America and are hereby adopted by reference and no discharge of sewage pertaining to vessels shall occur within the Republic of Palau in violation of said Marine Sanitation Device Requirements.

(Effective May 26, 1996)

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC)

2401-11-39 Applicability

Sections 2401-11-39 through 2401-11-41 apply but are not limited to all facilities that, on September 29, 1994, were subject to the SPCC requirements of USEPA. This includes, but is not limited to all bulk petroleum product storage facilities within the Republic of Palau.

(Effective May 26, 1996)

2401-11-40 Definitions

Unless specifically indicated otherwise, or unless the context clearly requires a different meaning, for the purposes of this Section,

(A) "Owner or Operator" means any person owning or operating an on-shore facility or an off-shore facility, and, in the case of an abandoned facility, any person that owned or operated the facility immediately prior to abandonment.

(B) "SPCC Plan" means the Spill Prevention Control and Countermeasure Plan required pursuant to 40 CFR Part 112.

(Effective May 26, 1996)

2401-11-41 SPCC Requirements

(A) The SPCC Plan and oil spill requirements of 40 CFR Parts 110, 111 and 112 are hereby adopted by reference, except that the Board shall have the authority to take any action or impose any requirement that said Parts of the CFR authorize the Administrator to take or impose.

(B) Any person that owns or operates any facility, whether off-shore or on-shore, shall complete, maintain, and, as either necessary or as required by the EQPB, revise the SPCC plan for that facility to the same extent required by 40 CFR Parts 110, 111 and 112.

(Effective May 26, 1996)

WATER USE AREAS: CLASSIFICATION AND ESTABLISHMENT

2401-11-42 Surface Waters

The following classification of water uses shall apply to the following areas:

(A) Babeldaob

(1) Class AA: All areas not otherwise classified and those coastal waters not having a specific water use classification are considered Class AA Waters.

(2) Class B: Village Docks

(B) Koror

(1) Class AA: All areas (not otherwise classified)

(2) Class A:

(a) Meyuns

(b) Echang

(c) Cholebdechal (Oleblechol)

(d) Ngiritang

(e) M-Dock (Singhatoba) Point

(f) Ngetmeduch

(g) Mechang

(3) Class B:

(a) Malakal (Ngemelachel) Harbor

(b) M-Dock (Singhatoba) including S.E. of Ngerbeched Shore

(c) Kemangel Toachel, excluding T-Dock (Ngerkemaais)

(d) Metukerademul to E. side of old Japanese Dock (Derromel)

(e) Ngereksong

(f) *Nikko (Iwayama) Bay from the Nikko pier to a shoreline boundary approximately 1200 feet N.W. of the Nikko pier and an additional 300 feet of offshore reef flat to the N.W. of the shoreline boundary.**

(g) *Waters extending 200 meters from the shoreline of Ngerur Island.***

(C) Peleliu

(1) Class AA: All areas (not otherwise classified)

(2) Class A:

- (a) Ngebad to Ngarekeiukel point
- (b) Southern side of island
- (3) Class B: Akalakul (Elochel) Dock
- (D) Angaur
- (1) Class AA: All areas (not otherwise classified)
- (2) Class A:
 - (a) Pkulamekaep (Bkulamekaeb) point to Medorm
 - (b) Beach south of Pkulagelul (Bkulengeluul) point
 - (c) Beach between Ngedeloch point and Medorm
- (3) Class B: Angaur (Ngeaur) Harbor
- (E) Sonsorol
- Class AA: All areas (not otherwise classified)
- (F) Tobi
- Class AA: All areas (not otherwise classified)
- (G) Merir
- Class AA: All areas (not otherwise classified)
- (H) Pulo Anna
- Class AA: All areas (not otherwise classified)

(Effective May 26, 1996)

**(Amendment Effective May 18, 1998)*

*** (Amendment Effective October 6, 2000)*

2401-11-43 Groundwater Areas

The following classification of water uses shall apply to the following areas:

- (A) Class I Groundwater: All sources of fresh groundwater on all islands, whether publicly or privately owned, used or potentially used, for domestic, culinary or food processing purposes.
- (B) Class II Groundwater: All fresh groundwater not included in Class I and Class III.
- (C) Class III Groundwater: All groundwater not considered potential sources of drinking water and of limited beneficial use which are heavily saline, with total dissolved solids levels over 10,000 mg/l or which are otherwise contaminated beyond levels that allow cleanup using methods reasonably employed in public water system treatment.

(Effective May 26, 1996)

WATER QUALITY CERTIFICATION

2401-11-44 Permits/Licenses Subject to Certification

- (A) Water quality certification must be provided by the Board prior to the issuance of any EQPB Permits or any permits required by Sections 402 and 404 of the United States Clean Water Act (33 U.S.C. Sections 1342 and 1344) and section 10 of the United States Rivers and Harbors Act, approved March 3, 1899, (33 U.S.C. 403).
- (B) A Republic of Palau Foreign Investment Board license may also be required in order to receive water quality certification.

(Effective May 26, 1996)

2401-11-45 Scope of Work

The scope of review of applications for certification shall be sufficient to determine that no permit would violate water quality standards or become a source of pollution in the future. Such review shall include an examination of but not limited to the following:

- (A) Impact on water quality at the proposed project site;
- (B) Impacts on water quality of any or all waters influenced by the project, including groundwater, downstream and upstream waters, tidal influenced water or other fresh, marine, or brackish water influenced by the project as a result of topography, percolation, recharge, currents or other hydrologic and geologic conditions;
- (C) Impacts of operation of the project on water quality at site and influenced waters as described in Division B; and
- (D) All criteria and standards included in these regulations shall be considered.

(Effective May 26, 1996)

2401-11-46 Approval Criteria

- (A) No certification shall be issued in violation of the national policy set forth in Section 2401-11-03 of these regulations.
- (B) Certification of projects which are not water dependent shall be denied.
- (C) Certification of non-water dependent projects for which there is a viable alternative shall be denied.
- (D) Certification is denied if the project will prevent or interfere in the maintenance of applicable water quality standards.
- (E) Certification is denied if impacts to water quality cannot be made acceptable through conditioning of the certification and/or permit for which certification is sought.

(Effective May 26, 1996)

2401-11-47 Conditioning of the Certification

- (A) The Board shall place any conditions on a water quality certification that are necessary to assure the applicant will comply with water quality standards, effluent limitations, and with any applicable Republic of Palau or its State's Laws or Regulations.
- (B) Conditions shall include, but are not limited to:
 - (1) structural and nonstructural mitigation measures;
 - (2) appropriate effluent treatment systems;
 - (3) appropriate operations and maintenance plans;
 - (4) compensation to the fullest extent possible for functional losses to the local ecosystem by the unavoidably lost wetlands; and,
 - (5) compensation for the loss of certain areas with the permanent preservation of other similar ecosystems.

(Effective May 26, 1996)

2401-11-48 Contents of Certification

A certification made by the Board shall include the following:

- (A) The name and address of the applicant;
- (B) A statement that the Chairman has either:
 - (1) Examined the application made by the applicant to the licensing or permitting agency (specifically identifying the number or code affixed to such application) and bases the certification upon an evaluation of the information contained in such application which is relevant to water quality considerations; or,
 - (2) Examined other information furnished by the applicant sufficient to permit the Chairman to make the statement described in Subdivision 1 above;
- (C) A statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards;
- (D) A statement of any conditions which the Chairman deems necessary or desirable with respect to the discharge of the activity; and,
- (E) Such other information as the Chairman may determine to be appropriate.

(Effective May 26, 1996)

2401-11-49 Standard For Certification

If, after considering the complete application, comments received during the public comment period, the record of any public hearing held pursuant to 24 PNC Section 162 and other information and data as the Chairman deems relevant, should the Chairman determine that there is a reasonable assurance that applicable water quality standards will not be violated and the best practicable methods of control will be applied to a discharge which is the result of any activity including, but not limited to, the construction and operation of facilities, then the Chairman shall so certify.

(Effective May 26, 1996)

2401-11-50 Certification Modification

The Chairman may modify the certification prior to the issuance of any applicable license or permit, after consideration of information presented by the applicant, licensing or permitting agency or other government agencies or interested parties.

(Effective May 26, 1996)

2401-11-51 Contents of Application

- (A) An applicant for certification shall submit a complete description of the discharge involved in the activity for which certification is sought, with a request for certification signed by the applicant. Such description shall include the following:
 - (1) The name and address of the applicant;

- (2) A description of the facility or activity, and of any discharge into the Republic of Palau waters which may result from the conduct of any activity including, but not limited to the construction or operation of the facility, including characteristics of the discharge, and the location or locations at which such discharge may enter waters of the Republic;
- (3) If applicable, a description of the function and operation of equipment or facilities to control discharges, including specification of the methods of control to be used;
- (4) The estimated date or dates on which the activity will begin and end the date or dates on which the discharge(s) will take place;
- (5) If applicable, a description of the methods and means being used or proposed to monitor the quality and characteristics of the discharge and the operation of equipment or facilities employed in the control of the proposed discharges;
- (B) The Chairman may require the submission of additional information after a certification application has been filed, and shall insure that, if the certification application is incomplete or otherwise deficient, processing of the application shall not be completed until such time as the applicant has supplied the missing information or otherwise corrected the deficiency. The Chairman shall notify the applicant, in writing, within thirty (30) days of the submission of an application, if an application is incomplete or otherwise deficient. A description of the type of additional information necessary to complete the application or correct the deficiency will be included with such a written notice. Failure to provide additional information or to correct a deficiency shall be sufficient grounds for denial of certification.
- (C) The applicant will be informed, in writing, by the Chairman, when a certification application is considered to be complete. The Chairman shall act on a request for certification within a period which shall not exceed three (3) months;
- (D) The applicant is required to notify the Board immediately, in writing, of changes which may effect the application and certification process;
- (E) Fees shall be made payable to the National Treasury. The Republic and its State governments and agencies are exempt from paying filing fees.

(Effective May 26, 1996)

2401-11-52 Notice and Hearing

- (A) The Chairman may, upon request, provide the opportunity for a public hearing(s) to consider the issuance of a water quality certification. A notice shall be published in accordance with 24 PNC Section 162.
- (B) The Chairman shall inform the applicant, in writing, that such action has been taken.
- (C) All publication costs related to public hearing(s) notification(s) shall be paid by the applicant to the necessary and appropriate newspaper agency(ies) prior to publication date. Failure to do so may result in

a delay in the certification process beyond three (3) months.

(Effective May 26, 1996)

2401-11-53 Waiver

If the discharge in question is the result of activities which receive a nationwide permit for the discharge of dredge and fill materials, thereby fulfilling specific conditions of that permit pursuant to 24 PNC Section 162, then the Chairman will determine, on a case-by-case basis, which projects are considered to be minor, with a negligible impact and non-controversial. Certification requirements of this section shall be waived for minor projects which have a negligible impact, and are non-controversial activities within three (3) months of the receipt of a completed application.

(Effective May 26, 1996)

2401-11-54 Effect of New Standards on Permitted Activity

The Board shall review any project or activity wherever:

- (A) A license or permit was issued without certification due to the absence of applicable water quality standards;
- (B) Water quality standards applicable to the waters into which the licensed or permitted activity may discharge are subsequently established before the activity is completed; and,
- (C) The Board determines that such uncertified activity is violating water quality standards.

(Effective May 26, 1996)

ENFORCEMENT

2401-11-55 Enforcement

Any person in violation of any of the provisions of these regulations shall be subject to enforcement and court action under 24 PNC Sections 161 through 172, inclusive.

(Effective May 26, 1996)

MISCELLANEOUS PROVISIONS

2401-11-56 Severability Clause

If any provisions of these regulations or the application of any provision of these regulations to any person or circumstances is held invalid, the application of such provision to other persons or circumstances and the remainder of these regulations shall not be effected thereby.

(Effective May 26, 1996)

2401-11-57 Repealer

The regulations contained herein shall replace the Republic of Palau EQPB Marine and Fresh Water Quality Standards Regulations in effect upon the effective date of these regulations.

(Effective May 26, 1996)

2401-11-58 Protected Areas

*All activities subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

**(Amendment Effective March 12, 1999)*

APPENDIX A
TOXIC SUBSTANCE CRITERIA
(Concentrations in ug/L unless otherwise stated)

CHEMICAL NAME	CHRONIC AQUATIC LIFE CRITERIA (INSTANTANEOUS MAXIMUS)		HUMAN HEALTH CRITERIA (30 DAY AVERAGE)	
	FRESH WATERS	MARINE WATERS	FRESH WATERS	MARINE WATERS
1. ACENAPHTHENE			20µ	
2. ACROLEIN			320	780
3. ACRYLONITRILE			.06*	.65*
4. BENZENE			.66*	40*
5. BENZIDINE			.12ng/L*	.53ng/L*
6. CARBON TETRACHLORIDE			0.4*	6.9*
7. CHLOROBENZENE			20µ	488
8. 1,2,4-TRICHLOROBENZENE ☒●				
9. HEXACHLOROBENZENE			0.72ng/L*	0.74ng/L*
10. 1,2-DICHLOROETHANE			0.94*	243*
11. 1,1,1-TRICHLOROETHANE			18.4mg/L*	.17g/L*
12. HEXACHLOROETHANE			1.9*	8.7*
13. 1,1-DICHLOROETHANE ☒●				
14. 1,1,2-TRICHLOROETHANE			0.6*	41.8*
15. 1,1,2,2--TETRACHLOROETHANE			0.17*	10.7*
16. CHLOROETHANE ☒●				
17. BIS(2-CHLOROETHYL)ETHER			0.03	1.36*
18. 2-CHLOROETHYL VINYL ETHER ☒●				
19. 2-CHLORONAPHTHALENE ☒●				
20. 2,4,6-TRICHLOROPHENOL			1.2*	3.6*
21. 4-CHLORO-3-METHYLPHENOL			3mg/L	
22. CHLOROPHORM			.19*	15.7*
23. 2-CHLOROPHENOL			0.1	
24. 1,2-DICHLOROBENZENE			400	2600
25. 1,3-DICHLOROBENZENE			400	2600
26. 1,4-DICHLOROBENZENE			400	2600
27. 3,3-DICHLOROBENZIDINE			.01*	.02*
28. 1,1-DICHLORORETHYLENE			.03*	1.85*
29. 1,2-TRANSDICHLOROETHYLENE ☒●				
30. 2,4-DICHLOROPHENOL			.3µ	
31. 1,2-DICHLOROPROPANE ☒●				
32. 1,3-DICHLOROPROPENE			87	14.1mg/L
33. 2,4-DIMETHYLPHENOL			400µ	
34. 2,4-DINITROTOLUENE			.11*	9.1*

CHEMICAL NAME	CHRONIC AQUATIC LIFE CRITERIA (INSTANTANEOUS MAXIMUS)		HUMAN HEALTH CRITERIA (30 DAY AVERAGE)	
	FRESH WATERS	MARINE WATERS	FRESH WATERS	MARINE WATERS
	35. 2,6-DINITROTOLUENE ☐●			
36. 1,2-DIPHENYLDRAZINE			.04*	.56*
37. ETHYLBENZENE			1400	3280
38. FLOURANTHENE			42	54
39. 4-CHLOROPHENYLPHENYLETHER ☐●				
40. 4-BROMOPHENYLPHENYL ETHER ☐●				
41. BIS (2-CHLOROISOPROPYL) ETHER			34.7	4360
42. BIS (2-CHLOROETHOXY) METHANE☐●				
43. METHYLENE CHLORIDE			.19*	15.7*
44. METHYL CHLORIDE			.19*	15.7*
45. METHYL BROMIDE			.19*	15.7*
46. BROMOFORM			.19*	15.7*
47. DICHLORODIBROMETHANE			.19*	15.7*
48. CHLORODIBROMOMETHANE			.19*	15.7*
49. HEXACHLOROBUTADIENE			.45*	50*
50. HEXACHLOROCYCLOPENTADIENE			1.0☐	
51. ISOPHORONE			5.2mg/L	520mg/L
52. NAPHTHALENE ☐●				
53. NITROBENZENE			30☐	
54. 2-NITROPHENOL ☐●				
55. 4-NITROBENZENE ☐●				
56. 2,4-DINITROPHENOL			70	14.3mg/L
57. 4,6-DINITRO-2-METHYLPHENOL			13.4	765
58. N-NITROSODIMETHYLAMINE			1.4ng/L	16*
59. N-NITROSODIPHENYLAMINE			4.9*	16*
60. N-NITROSODI-N-PROPYLAMINE ☐●				
61. PENTACHLOROPHENOL	13☐‡	7.9☐‡	30☐	
62. PHENOL			300☐	
63. BIS (2-ETHYLHEXYL) PHTHALATE			15mg/L	50mg/L
64. BUTYL BENZYL PHTHALATE ☐●				
65. DI-N-BUTYL PHTHALATE			34mg/L	154mg/L
66. DI-N-OCTYL-PHTHALATE ☐●				
67. DIETHYL PHTHALATE			350mg/L	1800mg/L
68. DIMETHYL PHTHALATE			313ng/L	2900ng/L
69. BENZO (A) ANTHRACENE			2.8ng/L*	31ng/L*
70. BENZO (A) PYRENE			2.8ng/L*	31ng/L*
71. 3,4-BENZOFLOURANTHENE			2.8ng/L*	31ng/L*
72. BENZO (K) FLOURANTHENE			2.8ng/L*	31ng/L*
73. CHRYSENE			2.8ng/L*	31ng/L*

EQPB Regulations Current as of January 8, 2013

CHEMICAL NAME	CHRONIC AQUATIC LIFE CRITERIA (INSTANTANEOUS MAXIMUS)		HUMAN HEALTH CRITERIA (30 DAY AVERAGE)	
	FRESH WATERS	MARINE WATERS	FRESH WATERS	MARINE WATERS
	74. ACENAPHTHYLENE			2.8ng/L*
75. ANTHRACENE			2.8ng/L*	31ng/L*
76. BENZO (GHI) PERYLENE			2.8ng/L*	31ng/L*
77. FLOURENE			2.8ng/L*	31ng/L*
78. PHENANTHRENE			2.8ng/L*	31ng/L*
79. DIBENZO (AH) ANTHRACENE			2.8ng/L*	31ng/L*
80. INDENO (1,2,3-CD) PYRENE			2.8ng/L*	31ng/L*
81. PYRENE			2.8ng/L*	31ng/L*
82. TETRACHLOROETHYLENE			0.8*	8.8*
83. TOLUENE			14.3mg/L	424mg/L
84. TRICHLOROETHYLENE			2.7*	80.7*
85. VINYL CHLORIDE			2.0*	525*
86. ALDRIN	3.0(acute)	1.3(acute)	.074ng/L*	.079ng/L*
87. DIELDRIN	1.9ng/L	1.9ng/L	.071ng/L*	.076ng/L*
88. CHLORDANE	4.3ng/L	4.0ng/L	.46ng/L*	.48ng/L*
89. 4,4'-DDT	0.001	0.001	.024ng/L*	.024ng/L*
90. 4,4'-DDE	0.001	0.001	.024ng/L*	.024ng/L*
91. 4,4'-DDD	0.001	0.001	.024ng/L*	.024ng/L*
92. A-ENDOSULFANALPHA	0.056	0.0087	74	159
93. B-ENDOSULFANBETA	0.056	0.0087	74	159
94. ENDOSULFANSULFATE	0.056	0.0087	74	159
95. ENDRIN	2.3ng/L	2.3ng/L	1	
96. ENDRIN ALDEHYDE	2.3ng/L	2.3ng/L	1	
97. HEPTACHLOR	3.8ng/L	3.6ng/L	0.2ng/L*	0.2ng/L*
98. HEPTACHLOREPOXIDE	3.8ng/L	3.6ng/L	0.2ng/L*	0.2ng/L*
99. A-BHC-ALPHA			9.2ng/L*	31ng/L*
100. B-BHC-BETA			16.3ng/L*	54.7ng/L*
101. G-BHC-GAMMA(LINDANE)	0.08	0.16	18.6ng/L*	62.5ng/L*
102. G-BHC-DELTA				
103. PCB-1242 (ARACHLOR 1242)	0.014	0.03	.079ng/L*	.079ng/L*
104. PCB-1254 (ARACHLOR 1254)	0.014	0.03	.079ng/L*	.079ng/L*
105. PCB-1221 (ARACHLOR 1221)	0.014	0.03	.079ng/L*	.079ng/L*
106. PCB-1232 (ARACHLOR 1232)	0.014	0.03	.079ng/L*	.079ng/L*
107. PCB-1248 (ARACHLOR 1248)	0.014	0.03	.079ng/L*	.079ng/L*
108. PCB-1260 (ARACHLOR 1260)	0.014	0.03	.079ng/L*	.079ng/L*
109. PCB-1016 (ARACHLOR 1016)	0.014	0.03	.079ng/L*	.079ng/L*
110. TOXAPHENE	0.2ng/L	0.2ng/L	0.7ng/L*	0.7ng/L*
111. ANTIMONY			146	45mg/L*
112. ARSENIC	190	36	2.2ng/L*	17.5ng/L*

EQPB Regulations Current as of January 8, 2013

CHEMICAL NAME	CHRONIC AQUATIC LIFE CRITERIA (INSTANTANEOUS MAXIMUS)		HUMAN HEALTH CRITERIA (30 DAY AVERAGE)	
	FRESH WATERS	MARINE WATERS	FRESH WATERS	MARINE WATERS
	113. ASBESTOS			30000f/L*
114. BERYLLIUM			6.8ng/L*	117ng/L*
115. CADMIUM	1.1 \ddagger	9.3 \ddagger	10	
116. CHROMIUM	11	50	50	
117. COPPER	12 \ddagger	2.9 \ddagger	1mg/L \boxtimes	
118. CYANIDES	5.2	1.0(acute)	200	
119. LEAD	3.2 \ddagger	5.6 \ddagger	50	
120. MERCURY	0.012	0.025	0.14	0.15
121. NICKEL	160 \ddagger	8.3 \ddagger	13.4	100
122. SELENIUM	5	71	10	
123. SILVER	0.12 \ddagger	2.3	50	
124. THALLIUM			13	48
125. ZINC	110 \ddagger	86 \ddagger	5mg/L \boxtimes	
126. DIOXIN (2,3,7,8-TCDD)			.000013ng/L*	.000014ng/L*

mg/L = milligrams per liter

ng/L = nanograms per liter

ug/L = micrograms per liter

* = criteria based on one in a million health risk

\boxtimes = criteria based on a organoleptic data

\ddagger = toxicity hardness dependent, based on a hardness of 100 mg/L calcium carbonate

\ddagger = toxicity pH dependent, based on a pH of 7.0

● = no criteria promulgated at this time

CHAPTER 2401-13 TOILET FACILITIES AND WASTEWATER DISPOSAL SYSTEMS REQUIREMENTS

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GENERAL PROVISIONS

2401-13-01 Authority

These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board pursuant to the authority vested in the Board under Section 5 of Palau Public Law 1-58 (24 Palau

National Code Section 121 et. seq.) the Palau Environmental Quality Protection Act and Section 5 of Palau Public Law No. 1-73 (34 Palau National Code Section 1201 et seq.), the Sewer Use Act of 1984. These regulations shall have the force and effect of law and shall be binding on all persons whether public or private subject to the Jurisdiction of the Republic of Palau.

(Effective May 26, 1996)

2401-13-02 Purpose

The purpose of these regulations is to establish standards and regulate toilet and wastewater disposal systems, and to require minimum standards governing the design, construction, installation and operation of toilet and wastewater disposal systems. Such standards are intended to:

- (A) Establish minimum standards for toilet facilities and wastewater disposal to minimize environmental pollution, health hazards and public nuisance from such systems and facilities;
- (B) Protect the health of the septic tank user and all neighbors; and,
- (C) Establish minimum requirements that will ensure that wastes discharged:
 - (1) Will not contaminate any drinking water supply;
 - (2) Will not be accessible to insects, rodents, or other possible carriers of disease which may come into contact with food or drinking water;
 - (3) Will not pollute or contaminate the waters of any bathing beach, shellfish breeding grounds or stream used for public or domestic water supply purposes or for recreational purposes;
 - (4) Will not pose a health hazard by being accessible to children;
 - (5) Will not give rise to a nuisance due to odor or unsightly appearance; and,
 - (6) Will not violate any other laws or regulations governing water pollution or sewage disposal.

(Effective May 26, 1996)

2401-13-03 Definitions

As used herein, unless the context otherwise requires, the terms:

- (A) "Abutting Property" means that property, which lies next to any road, street or easement in which a public sewer is located. The boundary of the private property abutting the sewer need not physically touch the sewer easement so long as that piece of land separating the sewer easement from the abutting property consists of a public right of way, easement, road, or street not owned or controlled by another private owner, so that the abutting property owned

would be required to obtain a private easement in order to connect this property with that of the sewer.

(B) "Board" or "EQPB" means the Republic of Palau Environmental Quality Protection Board or its duly authorized representative.

(C) "Building Sewer" means the extension from the building drain to the public sewer or other place of disposal.

(D) "Cesspool" means excavation which receives or is intended to receive untreated sewage and from which the liquid directly seeps or leaches into surrounding porous soil. No cesspool construction is allowed under these regulations unless the Chairman gives prior written consent for such construction upon a showing of special mitigating circumstances by permit applicant.

(E) "Chairman of the Palau Environmental Quality Protection Board" or "Chairman" means the Chairman personally or the Chairman's duly authorized representative.

(F) "Duplex" means a building which is designed exclusively for the occupancy of one family in each of two units which are attached to each other and which are detached from any other dwelling or commercial building.

(G) "House Sewer or Building Drain" means that part of the lowest piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of any building, public or private, and conveys it to the building sewer, beginning five (5) feet outside the inner face of the building wall.

(H) "Individual Sewage Disposal System" or "Private Sewage Disposal System" means a system designed and installed to dispose of sewage from a single building or group of buildings located on one lot. Such a system may consist of a septic tank, together with a leaching field or seepage pit, or other treatment unit.

(I) "Leaching Field" means a buried system of open-jointed or perforated pipes, bedded in crushed rock or coral, or buried system of leaching chambers through which treated or partially treated sewage effluent may seep or leach into the surrounding porous soil.

(J) "Person" means the Republic of Palau, a state, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm, or company organized or existing under the laws of the Republic or of any state or country, a lessee or other occupant or property, or an individual, acting singly or as a group.

(K) "Public Sewer" means a common sewage collection system serving more than one lot, directly controlled by public authority.

(L) "Seepage Pit" means covered pit with open-jointed lining through which treated or partially treated sewage effluent may seep or leach into the surrounding porous soil.

(M) "Septic Tank" means a water tight receptacle which receives the discharge of sewage and is designed and constructed so as to retain solids, digest organic matter through a period of detention, and allow the treated liquids to discharge into the subsoil through a leaching field or seepage pit.

(N) "Sewage" or "Wastewater" means untreated or insufficiently treated human excreta, food wastes disposed of through sewers; wash water; liquid wastes from residences, commercial buildings, agricultural operations, and industrial establishments or other places of assembly, and such diluting water as may have entered the waste disposal system.

(O) "Single Family Residence" means a building designed exclusively for occupancy of one family and containing only one dwelling unit.

(P) "Type 1" means a toilet which is flushed with water and is connected to a public sewer system.

(Q) "Type 2" means a toilet flushed with water and connected to a septic tank and leaching fields.

(R) "Type 3" means a structure and excavation for the disposal of human excreta by non-water carriage methods and includes the terms pit privy, trench latrine, bored hole latrine and outside benjo.

(S) "Type 4" or "Temporary Toilet Facility" means a toilet which is a mobile self-contained structure for the disposal of human excreta which waste is treated via chemicals, recirculation or combustion.

(T) "Waters of the Republic of Palau" means all waters in the Republic of Palau, including near shore waters, off-shore waters, and those brackish, fresh, and salt waters that are subject to ebb and flow of the tide including salt water marshes, salt water swamps, fresh water marshes, fresh water swamps, cultivated wetlands, lakes, rivers, springs, streams, mudflats, and all waters otherwise classified under the Republic of Palau Marine and Fresh Water Quality Regulations.

(Effective May 26, 1996)

TOILET FACILITIES AND WASTEWATER DISPOSAL SYSTEMS REQUIREMENTS

2401-13-04 Facilities and Systems Required

All public and commercial residences and buildings and structures and all private residences, buildings and structures shall have toilet facilities and wastewater systems as described in these regulations.

(Effective May 26, 1996)

2401-13-05 Public Sewer System

Where a public sewer system is available, all wastewater plumbing outlets from any and all buildings and structures public or private shall be connected to the public sewer system and all toilet facilities shall be of Type 1.

(Effective May 26, 1996)

2401-13-06 Public Sewer Not Available

(A) When no public sewer, intended to serve any lot or premises, is available in any thoroughfare or right of way abutting such lot or premises, drainage piping from any building or structure, public or private, shall be connected to an approved private wastewater disposal system and all toilet facilities shall be of Type 2, unless upon a showing of special mitigating circumstances, the Chairman gives prior written consent to the construction of a Type 3 facility.

(B) The public sewer may be considered as not being available when such public sewer or any building or any exterior drainage facility connected thereto, is located more than two hundred (200) feet from any proposed building or exterior drainage facility on any lot or premises which abuts and is served by such public sewer.

(C) Vertical Alignments - Where public sewer available to a particular building and sewer location is, (1) more than twenty (20) feet above the lowest floor level of the single family residence or a duplex; or (2) more than fifty (50) feet above the lowest floor level of any other structures, public sewer may be considered as not being available.

(Effective May 26, 1996)

2401-13-07 Temporary Toilet Facilities

Type 4 facilities shall be used only in the circumstances described in Sections 2401-13-31 through 2401-13-33, inclusive, of these regulations.

(Effective May 26, 1996)

2401-13-08 Public Sewer Connection

The connection of the building sewer into the public sewer shall conform to the requirements of the building and plumbing specifications set up by the person responsible for the operations of the public sewer system and any applicable rules and regulations of the Republic of Palau. All such connections shall be made gastight and watertight. Any deviations from the prescribed procedures and material must be made before installation by the person responsible for the operation of the public sewer system.

(Effective May 26, 1996)

2401-13-09 Private Wastewater Disposal Systems

(A) Where permitted by Sections 2401-13-04 through 2401-13-07, inclusive, of these regulations, a building may be connected to a private sewage disposal system which complies with other provisions set forth in these regulations. The type of system shall be determined on the basis of location, soil porosity, and ground water level and shall be designed to receive all sanitary sewage from the property. The system, except as otherwise provided, shall consist of a septic tank with effluent discharge into a sub-surface disposal field.

(B) Where conditions are such that the above system cannot be expected to function satisfactorily for commercial, agricultural and industrial plumbing systems; for installations where appreciable amounts of industrial or indigestible waste are produced; for hotels, hospitals, office buildings, or schools; for occupancies producing abnormal quantities of sewage or liquid wastes; the method of sewage treatment and disposal shall be first approved by the Chairman.

(C) Disposal systems shall be designed to utilize the absorptive portions of the soil formation. Subsurface soil disposal systems must have at least two feet of unsaturated soil between the bottom of the system and the seasonally high ground water level or bedrock. Where the ground water level extends to within eight feet or more of the ground surface or where the upper soil depth is sufficient and the underlying stratum is rock, or impervious soil, a septic tank and disposal field system may be installed. Where the ground water level extends less than eight feet below the ground surface, the method of on-site sewage treatment and disposal shall be first approved by the Chairman.

(D) All private sewage disposal systems shall be so designed that additional subsurface drain fields, equivalent to at least 100% of the required original system, may be installed if the original system cannot absorb all the sewage. No division of the lot or erection of structures on the lot shall be made if such division or structure impairs the usefulness of the 100% expansion for its intended purpose.

(E) No property shall be improved in excess of its capacity to property absorb sewage effluent in the quantities and by the means provided in these regulations.

(F) When there is insufficient lot area or improper soil conditions for adequate sewage disposal from a building or proposed use of the land as determined by the Chairman, no building permit shall be issued and no private sewage disposal shall be permitted. Where space or soil conditions are critical, no building permit shall be issued until

engineering data and test reports satisfactory to the Chairman have been submitted and approved.

(G) Where public sewers may be installed at a future date, provision should be made in the household plumbing system for connection to such sewer. Connection to the public sewer shall be required upon notification by the Chairman within a 5-year period after it is available.

(H) Nothing contained in these regulation shall be construed to prevent the Chairman from requiring compliance with higher requirements than those contained herein where such higher requirements are essential to maintain a safe and sanitary condition.

(Effective May 26, 1996)

PERMITS

2401-13-10 Permit Required

No building construction, public or private, may commence without first obtaining a permit from the Board certifying that the following shall be in compliance with these Regulations:

(A) Toilet facilities; and,

(B) Individual wastewater disposal system or public sewer connection intended to serve such building. *In addition, Toilet facilities, individual wastewater disposal systems or public sewer connections subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

(Effective May 26, 1996)

**(Amendment Effective March 12, 1999)*

2401-13-11 Required Information

Before specific plans and specifications for a permit application will be reviewed for compliance with Environmental Quality Protection Board regulations, plans and specifications shall contain the following as a minimum:

(A) Vicinity Map. Plans must include vicinity map to locate property showing adjacent streets with names and other land marks that can easily locate the property where the proposed improvement is to be established.

(B) Plot Plan (See Appendix, Figure 1). Plans must include a plot plan, drawn to scale, complete with all dimensions and must contain the following:

(1) Delineation of property boundaries, lot number and zone designation;

(2) Delineation of public rights of way, easements and access roads, if applicable;

(3) Indication of all existing structures on the lot including their location with respect to the lot boundaries;

(4) Location of proposed disposal system in relation to property boundaries, public rights of way, easements and access roads, existing structures and utilities, other bodies of surface water, public sewer, if any and proposed building;

(5) Topography of the area, showing contour lines and floor elevation of the existing or proposed building;

(6) A log of soil formations and ground water levels.

(C) Description of the complete installation of:

(1) Toilet facilities; and,

(2) Individual wastewater disposal system or public sewer connection.

The above information must include quality, kind and grade of material, equipment and method of assembly and installation.

Number of Bedrooms	Recommended Sewage Flow (Gallons) GPD	Recommended Minimum Tank Capacity (Gallons)	Recommended Minimum Inside Tank Dimension (L x W x D)
2	480	750	6' x 4' x 6'
3	720	1,080	7'6" x 4' x 6"
4	960	1,440	7' x 6' x 6'
5	1,200	1,800	7' x 7' x 6'
6	1,440	2,160	7' x 7' x 7'

Source: Manual of Septic Tank Practice - U.S. Department of Health; Education and Welfare. Public Health Service Publication #526

(D) Regardless of the type of disposal system applied for, the permit application should bear the signature of the Director of Public Works for water availability verification, and approval for sewer connection if sewers are available.

(E) Design calculation of the proposed private wastewater disposal system is required and the design must be done by a licensed specialty contractor or registered professional engineer.

(F) Percolation and water table tests for private wastewater disposal systems should be done by a registered professional engineer and such test results should bear the engineer's stamp and signature.

(G) Complete septic tank and leaching field or aeration tank and leaching field design and construction details should be included in the building plans and specifications for private wastewater disposal systems.

(H) A building permit application form completely filled out with name(s) and address of applicant, job location, lot, block and tract numbers and area of lot in square feet or square meters.

(I) Three (3) complete sets of building plans, one (1) for the Environmental Quality Protection Board and the other two (2) for distribution to other agencies.

(J) Such other information as the Board may require.

Location of all property lines must be verified by the Chief of the Division of Lands and Surveys or a designated representative.

(Effective May 26, 1996)

2401-13-12 Permit Automatically Void When

Any septic tank permit shall be void if the work authorized by said permit is not commenced within three (3) months after its issuance; or is suspended or abandoned for a period of three (3) months at any time after the work has commenced; provided that for just cause stated in writing to the Chairman, the Chairman may allow up to a maximum of three (3) months extension. All such extensions shall be in writing and noted on the septic tank permit and in the individual wastewater records of the Individual Wastewater Program Section.

(Effective May 26, 1996)

CONSTRUCTION STANDARDS

2401-13-13 General Requirements

(A) Every septic tank system, seepage pit, disposal field, subsurface absorption field, cesspool or Type 3 toilet facility (privy) shall have a substantial and watertight curbing around the top thereof to retain the earth outside and to prevent the seepage of the contents to the surface of the earth. Every, Septic tank, seepage pit, disposal field, subsurface absorption field or cesspool shall have a substantial and watertight cover and shall have a manhole not less than 12 inches in diameter for cleaning purposes. All Type 3 and Type 4 toilet housing structures shall be constructed of such material as will prevent access to human excreta by rodents, flies or other vectors. Every disposal system where caving in of earth is possible shall be lined with concrete building blocks, stones, pre-cast concrete or similar durable material. Ventilation shall be provided for all Type 3 and Type 4 toilet facilities to extend outside the building and to be not less than six feet high, measured from ground level. All toilet seats for all toilet facilities shall have a close fitting cover.

(B) No septic tank system, seepage pit, disposal field, subsurface absorption field, cesspool or Type 3 or Type 4 toilet facility (privy) shall be located, constructed or maintained so as to contaminate any potable or drinking water supply, and in no case shall any septic tank system, seepage pit, disposal field, subsurface absorption field, cesspool, type 3 or type 4 toilet facility be locate at a horizontal distance of less than fifty (50) feet from any body of surface water or marine water. No septic tank system, seepage pit, disposal field, subsurface absorption field, cesspool, Type 3 or Type 4 toilet facility shall be constructed or maintained less than five (5) feet from the boundary line of the property on which it is located.

(Effective May 26, 1996)

2401-13-14 Septic Tank Capacity

(A) The net volume or effective capacity below the flow line of a septic tank, for flows up to 500 gpd, should be at least 750 gallons. For flows between 500 and 1500 gpd, the capacity of the tank should equal to at least 1-1/2 days sewage flow. The liquid capacity and sizes of septic tank as determined by the number of bedrooms or duplex units in any dwelling occupancies shall be as established in Table I, "Guidelines for Construction of Septic Tank: Liquid Capacity".

(B) For Large Septic Tanks—For flows between 1,500 and 15,000 gal./day—the minimum tank capacity should be equal to 125 gallons plus 75% of daily sewage flow. The formula $V = 1,125 + 0.75 Q$ may be used, where value V is the net liquid flow in gallons. Table II, "Quantities of Sewage Flow" may be used to determine average flow per day for determining size of large septic tanks.

Example: *A motel providing bath, toilet, and kitchen facilities is to serve a maximum of 80 persons. Determine the capacity and dimensions of the septic tank needed. Table II indicates 50 gal of sewage per capita per day, or a total of 4,000 gal. This is Q in the formula. Then $V = 1,125 + 0.75 X 4,000 = 4,125$ gal. There are 7.48 gal in a cubic foot. Then $4,125 \div 7.48 = 552$ cu ft. A tank 5 ft. deep (liquid), 7 ft wide, and 16 ft long will provide 560 cu ft.*

(Effective May 26, 1996)

2401-13-15 Private System Location and Installation

(A) No part of the system shall be located so that it is nearer to any water supply than outlined in Figure 2 (See Appendix, Figure 2) and Table III, or so that surface drainage from its location may reach any domestic water supply. The distances given in Figure 2 (See Appendix, Figure 2) are the minimum distances to any water of the Republic, property lines, dwelling, school, public building, or a building used for commercial or industrial purposes or a place of assembly.

TABLE II QUANTITIES OF SEWAGE FLOW	
Type of Establishment	Gallons per person per day
Small dwellings and cottages with seasonal occupancy	50
Single-family dwellings	75
Multiple-family dwellings (apartments)	60
Rooming houses	40
Boarding houses	50
Additional kitchen wastes for nonresident boarders	10
Hotels without private baths	50
Hotels with private baths (2 persons per room)	60
Restaurants (toilet and kitchen wastes per patron)	7-10
Restaurants (kitchen wastes per meal served)	2-1/2-3
Additional for bars and cocktail lounges	2
Tourist camps or trailer parks with central bathhouse	35
Tourist courts or mobile-home parks with individual bath units	50
Resort camps (night and day) with limited plumbing	50
Luxury camps	100-150
Work or construction camps (semipermanent)	50
Day camps (no meals served)	15
Day school without cafeterias, gymnasiums or showers	15
Day schools with cafeterias but without gymnasiums or showers	20
Day schools with cafeterias, gymnasiums, and showers	25
Boarding schools	75-100
Day workers at schools and offices (per shift)	15
Hospitals	150-250+
Institutions other than hospitals	75-125
Factories (gal per person per shift, exclusive of industrial wastes)	15-35
Picnic parks (toilet wastes only, gal per picnicker)	5
Picnic parks with bathhouses, showers, and flush toilets	10

TABLE II QUANTITIES OF SEWAGE FLOW	
Type of Establishment	Gallons per person per day
Swimming pools and bathhouse	10
Luxury residences and estates	100-150
Country clubs (per resident member)	100
Country clubs (per nonresident member present)	25
Motels (per bed space)	40
Motels with bath, toilet, and kitchen wastes	50
Drive-in theaters (per car space)	5
Movie theaters (per auditorium seat)	5
Airports (per passenger)	3-5
Self-service laundries (gal per wash, i.e., per customer)	50
Stores (per toilet room)	400
Service stations (per vehicle served)	10
Source: Manual of Septic Tank Practice, Public Health Service Pub. 526. Municipal and Rural Sanitation 6th Edition.	

(B) Suggested locations of tanks and disposal fields on varying ground slopes are found in Figure 2A (See Appendix, Figure 2A).

(C) Location shall be such as to provide not less than the stated minimum distances in Table III.

(Effective May 26, 1996)

2401-13-16 Area of Disposal Fields and Seepage Pits

The minimum effective absorption area in disposal fields in square feet of leach field bed, shall be predicated on the required size of septic tank for the type of soil percolation rate as established in Table IV, "Guidelines for Construction of Septic Tanks and Leach fields on Palau" and Table V, "Minimum Leach field Sizes".

(Effective May 26, 1996)

TABLE III MINIMUM SAFE DISTANCES IN FEET			
From	To Septic Tank	To Absorption Bed	To Absorption Field
Any water of the Republic	50'	50'	50'
Any dwelling, school, public building, or a building used for commercial or industrial purpose	10'	20'	20'
Property boundary lines	5'	5'	5'
Water lines	10'		
Wells	50'		50'

2401-13-17 Septic Tank Standards

(A) Septic tank design shall be such as to provide access for cleaning, adequate volume for setting, and for sludge and scum storage (See Appendix, Figures 3 and 3A). The structural design shall provide for a sound durable tank which will sustain all loads and pressures and will resist corrosion.

(B) Location shall be such as to provide not less than the stated distances in Figure 2 (See Appendix, Figure 2) and Table III.

(C) Liquid capacity shall be based on the number of bedrooms proposed or reasonably anticipated and shall be at least as required in Table I.

(1) The liquid depth of the tank or compartment thereof shall be five (5) feet and not more than six (6) feet. A liquid depth greater than six (6) feet shall not be considered in determining tank capacity;

(2) No tank or compartment thereof shall have an inside horizontal dimension of less than four (4) feet or 48 inches. Scum storage shall equal 15% of the total liquid depth and shall be measured from the top of the liquid level to the vertical top of the inlet tee and outlet tee excluding the one (1) inch high air space at the top of the tank. In no case shall this space be less than seven (7) inches in height;

(3) The vertical leg of the inlet tee shall extend not less than six (6) inches below the liquid surface and above the liquid surface as required in (D)(2) above.

(D) Inlet and outlet connections shall be submerged so as to obtain effective retention of scum and sludge. The inlet invert shall be at least three (3) inches above the outlet invert.

(E) The vertical leg of the outlet tee shall extend upward to within 1 inch of the underside of the cover and downward to a point which is 40% of the liquid depth below the liquid surface. When a partition wall is used to subdivide the tank, it shall have a 4 inch diameter minimum opening, with the same invert elevation as the tank outlet (See Appendix, Figure 3A). The partition wall opening shall have an outlet

device equivalent to the tank inlet or outlet, so that outside air can enter both sides of the partition.

(F) When multi-compartment tanks are used, the volume of the first compartment shall be equal to or greater than that of any compartment.

(G) Access to each compartment of the tank shall be provided by a 18" x 18" minimum manhole or removable cover. The inlet and outlet tee connections shall also be accessible through properly placed manholes, handholes or by easily removed covers.

(H) Where the top of the septic tank is below ground grade level, manholes shall be built up to ground grade level.

(I) The wall of the tank shall not be less than 4 inches thick reinforced concrete poured in place, or less than 8 inches thick load bearing concrete hollow block reinforced at every 16" on center laid on a solid foundation and mortar joints well filled, plastered with 1/2 inch concrete mortar in the inside of the tank. The tank covers and floor slabs shall be not less than 4 inch thick reinforced concrete. Septic tank covers may either be poured-in-place or pre-cast. The minimum compressive strength of any concrete septic tank wall, top and covers, or floor shall not be less than 2500 psi (pound per square inch).

(J) All septic tank covers shall be capable of supporting an earth load of not less than 300 pounds per square foot where the maximum coverage does not exceed three (3) feet.

(K) After the completion of the septic tank, the inside shall be cleaned and all forms removed, before occupancy permits will be issued.

(Effective May 26, 1996)

TABLE IV GUIDELINES FOR CONSTRUCTION OF SEPTIC TANKS AND LEACHFIELDS IN PALAU				
Number of Bedrooms	Wastewater Flow (GPD)	Septic Tank Capacity (Gal)	Percolation Test Rate	Required Absorption Area(Ft2)
2	480	750	1" - 5 min	250
			1" - 10 min	330
			1" - 15 min	380
			1" - 30 min	500
			1" - 45 min	600
			1" - 60 min	800
3	750	1,080	1" - 5 min	328
			1" - 10 min	450
			1" - 15 min	545
			1" - 30 min	800
			1" - 45 min	900
			1" - 60 min	1,200
4	960	1,440	1" - 5 min	436
			1" - 10 min	600
			1" - 15 min	738
			1" - 30 min	1,070
			1" - 45 min	1,200
			1" - 60 min	1,600
5	1,200	1,800	1" - 5 min	436
			1" - 10 min	600
			1" - 15 min	738
			1" - 30 min	1,340
			1" - 45 min	1,500
			1" - 60 min	2,000
6	1,440	2,160	1" - 5 min	660
			1" - 10 min	900
			1" - 15 min	1,100
			1" - 30 min	1,600
			1" - 45 min	1,800
			1" - 60 min	2,400

TABLE V
MINIMUM LEACHFIELD SIZES

Number of Bedrooms	Daily Sewage Flow (GPD)	Tank Capacity (Gals.)	Percolation Test Rate	Required Absorption Area (Gal/Ft ² /Day)	Leaching Field Dimension (W x L)	Required Absorption Area (Ft ²)
2	480	750	1" - 5 min "		12' x 21'	250
			1" - 10 min		18' x 20'	330
			1" - 15 min		18' x 22'	380
			1" - 30 min		Trench System Required	500
			1" - 45 min			600
			1" - 60 min			800
3	750	1,080	1" - 5 min	2.2g/da.	18' x 19'	328
			1" - 10 min	1.6g/da.	18' x 25'	450
			1" - 15 min	1.3g/da.	18' x 31'	545
			1" - 30 min	0.9g/da.	Trench System Required	800
			1" - 45 min	0.8g/da.		900
			1" - 60 min	0.6g/da.		1,200
4	960	1,440	1" - 5 min		18' x 25'	436
			1" - 10 min		18' x 34'	600
			1" - 15 min		18' x 41' or 24 x 38	738
			1" - 30 min		Trench System Required	1,070
			1" - 45 min			1,200
			1" - 60 min			1,600
5	1,200	1,800	1" - 5 min		18' x 31'	436
			1" - 10 min		18' x 42'	600
			1" - 15 min		24' x 38'	738
			1" - 30 min		Trench System Required	1,340
			1" - 45 min			1,500
			1" - 60 min			2,000
6	1,440	2,160	1" - 5 min		18' x 37'	660
			1" - 10 min		24' x 38'	900
			1" - 15 min		30' x 37'	1,100
			1" - 30 min		Trench System Required	1,600
			1" - 45 min			1,800
			1" - 60 min			2,400

PERCOLATION TESTS

2401-13-18 Percolation Tests Required

(A) The absorption areas or disposal field and seepage pits for individual residences whenever applicable shall be computed or determined from Table IV.

(B) The proposed site shall be subjected to percolation tests acceptable to the EQPB if it is determined that the absorption quality of soils are other than those shown in Table IV.

(1) For individual lots, one (1) percolation test per lot is required as a minimum, provided the soil is uniform and of one type. Where the soil is not uniform or there is more than one type of soil on the lot, one percolation test is required as a minimum at the center of each variation or type of soil of significant size.

(2) For subdivisions or multiple lots, one percolation test per acre is required as a minimum for each area consisting of uniform soil of one type.

(Effective May 26, 1996)

2401-13-19 Test Procedure

All percolation tests required should be performed in accordance with the following (See Appendix, Figure 4):

(A) Dig or bore the holes with horizontal dimensions from 4 to 12 inches and vertical sides to the depth of the bottom of the proposed absorption device. Holes can be bored with 4 inch diameter port-hole type auger.

(B) Roughen or scratch the bottom and sides of the holes to provide a natural surface. Remove all loose materials from the hole. Place about 2 inches of coarse sand or fine gravel in the hole to prevent bottom scouring.

(C) Fill the hole with clear water to a minimum depth of 12 inches over the gravel. By refilling, or by supplying a surplus reservoir of water (automatic siphon), keep water in hole for at least four hours, and preferably overnight. In granular soils, i.e., GW, GP, SW, or SP classified according to the Unified Soils Classification System," the test can be made after the water from one filling has seeped away.

(D) Percolation rate measurements should be made on the day following the saturation process, except in sandy soils.

(E) If water remains in the test hole on overnight saturation, adjust water level to a depth of 6 inches over the gravel. From a fixed reference point, measure the drop in water level at approximately 30-minute intervals over a 4-hour period. The drop which occurs during the final 30-minute period is used to calculate the percolation rate. It must be noted that if a soil or site is determined to be poorly drained with an accompanying high water table, it is unsuitable regardless of percolation test data.

(F) If no water remains in the hole after overnight saturation, add clear water to a depth of about 6 inches over the gravel. From a fixed reference point, measure the height of the water surface at approximately 30 minute intervals over a 4-hour period, refilling the hole to a depth of 6 inches when the percolation rate indicates the hole will run dry before the next reading is made. The drop which occurs during the final 30-minute period is used to calculate the percolation rate. It should be noted that if a hole must be refilled to obtain a final 30-minute reading, determine from the previous reading the water level drop during that interval and add water until the level above the bottom equals this figure plus one-half inch. Continue the test, measuring the drop during the final 30-minute period.

(G) In sandy soils, or other soils in which the first six (6) inches of water seeps away in less than 30 minutes, after the overnight saturation period, the time interval between measurements can be taken as 10 minutes and the test run over a period of one hour. The drop which occurs in the final 10-minute period is used to calculate the percolation rate.

(Effective May 26, 1996)

SUBSURFACE ABSORPTION FIELD

2401-13-20 Absorption Bed

Where percolation rates are faster one inch per thirty (30) minutes and soil characteristics and site conditions are acceptable to the Chairman, an absorption bed system may be installed. (See Appendix, Figure 5).

(Effective May 26, 1996)

2401-13-21 Absorption Trench

Where percolation rates are one inch per thirty minutes or slower but faster than one inch per sixty minutes and all other soil conditions and site characteristics are acceptable to the Chairman, an absorption trench system may be installed. (See Appendix, Figure 5). Minimum required absorption areas are given in Tables IV and V. For a bed type system this represents the floor area of the bed. For a trench type system this represents the bottom area of the trench. The standard trench width is three feet.

(Effective May 26, 1996)

2401-13-22 Subsurface Leaching System

Subsurface leaching system, if found to be applicable by a percolation test, should be designed and constructed in accordance with Table IV and Table V, and the minimum distances given below shall be used when determining where the disposal field can be located:

- (A) Sources of domestic water supplies....300 feet
- (B) Water of the Republic.....50 feet
- (C) Dwellings:
 - (1) Septic Tank.....10 feet
 - (2) Leaching system.....20 feet
 - (3) Privy.....20 feet
- (D) Property Lines.....5 feet
- (E) Wells.....300 feet

Note: When existing wells are involved or exceptionally coarse soil formations are encountered, the 300 foot distance from any water supply shall be evaluated and separations maintained in accordance with the recommendations of the Chairman.

(Effective May 26, 1996)

2401-13-23 Subsurface Seepage Fields

- (A) Sources of domestic water supplies....300 feet
- (B) Water of the Republic.....50 feet
- (C) Dwellings.....20 feet
- (D) Property lines.....5 feet
- (E) Wells.....300 feet

Note: When existing wells are involved or exceptionally coarse soil formations are encountered, the 50 foot-distance from any water supply shall be increased in accordance with the recommendations of the Chairman.

(Effective May 26, 1996)

LEACHFIELD CONSTRUCTION

2401-13-24 In Filled Ground

No person may construct any portion of any leach field in filled ground without the prior written approval of the Chairman.

(Effective May 26, 1996)

2401-13-25 Construction Standards

All leaching fields shall be constructed within the following standards:

(A) Distribution drain lines shall be constructed of perforated PVC pipes or perforated clay pipes, concrete or fiberglass leaching chambers or other approved materials may be used, provided that sufficient openings are available for distribution drain lines of the effluent into the leach bed area.

(B) Before placing filter material, leaching chambers or drain lines in a prepared excavation, all smeared or compacted surfaces shall be removed from leaching bed area by raking to a depth of 1-inch and the loose material removed. In standard perforated pipe/filter materials leach fields, clean stone, gravel slag or similar filter material acceptable to the Chairman, varying in sizes from 3/4" to 2-1/2" shall be placed in the trench or bed to the depth and grade required in Table VI and Figure 5.(See Appendix, Figure 5).

(C) Drain lines shall then be covered with filter material to the minimum depth required on Table VI and this covered with untreated building paper, straw, or similar porous material to prevent closure of voids with earth backfill. No earth backfill shall be placed over the filter material cover until after inspection and acceptance by the Chairman.

(D) Leachfields employing leaching chambers shall be constructed in accordance with the leaching chambers' manufacturer's recommendations and/or as directed by the Chairman.

(E) Connections between a septic tank and main distribution lines shall be laid with approved pipe with water tight joints on natural ground or compacted fill.

(F) Disposal or leaching field shall be constructed as follows:

- Minimum number of drains.....2
- Maximum length of each line.....52 feet
- Minimum bottom width of leach bed.....12 feet

TABLE VI SUBSURFACE LEACHING FIELD CONSTRUCTION DETAILS					
Item	Unit	Bed		Trench	
		Max.	Min.	Max.	Min.
Number of Distribution Drain Lines	----	7	2	8	2
Distance from drain line perimeter of leach field	feet	3	3	1-1/2	----
Length of Leach field	feet	100	21	100	----
Width of Leach field	feet	50	12	3	3
Depth of coarse material					
Under pipe (Minimum)	inches	6			6
Over pipe (Maximum)	inches	2			2
Total (Minimum)	inches	12			12
Size of coarse material	inches	2-1/2	3/4	2-1/2	3/4
Depth of backfill over coarse material	inches	36	12	36	12
Distance between drain lines (Center to center)	feet	6	----	----	6
Note: Exception to the above table may be made by EQPB when soil conditions warrant.					

Subsurface seepage fields (leachfield), if found to be applicable by percolation test, shall be designed and constructed in accordance with Table IV and V, and the minimum distances given below shall be used when determining where the disposal field can be located:

Maximum bottom width of leach bed.....	42 feet
Minimum bottom length of leach bed.....	21 feet
Maximum bottom length of leach bed.....	57 feet
Maximum spacing of drain lines center to center.....	6 feet
Preferred depth of cover of lines.....	24 inch
Minimum depth of earth cover over lines.....	18 inch
Minimum filter material under drain lines.....	6 inch
Minimum filter material over drain lines.....	2 inch
Minimum Total Filter Material.....	12 inch
Maximum grade of lines.....	6 inches per 100 feet
Minimum grade of lines.....	3 inches per 100 feet

(G) Notwithstanding the requirements set forth in Division F of this Section:

- (1) When perforated pipe is used it shall be laid level and the end of the line capped.
- (2) Where leaching beds are permitted, distribution drain lines in leaching beds shall not be more than six (6) feet apart on centers and no part of the perimeter of the leaching bed shall be more than three (3) feet from a distribution drain line.
- (3) When necessary on sloping ground to prevent excessive line slope, leach lines or leach beds shall be stepped. The lines between each horizontal section shall be made with watertight joints and shall be utilized to the maximum capacity before the effluent shall pass to the next lower leach line or bed. The lines between each horizontal leaching section shall be made with approved watertight joints.

(Effective May 26, 1996)

SEEPAGE PITS

2401-13-26 General

(A) Seepage pits may considered to be used to supplement the subsurface disposal field or in lieu of such field where conditions favor the operation of seepage pits, as may be found necessary and approved by the Chairman on a case-by-case basis. (See Appendix, Figure 6).

(B) Care should be taken to avoid extending the seepage pit into ground water table. Where the pit is used to receive the septic tank effluent, the same limitations established on Table III shall govern the location of the pit.

(Effective May 26, 1996)

2401-13-27 Construction Standards

(A) The capacity of seepage pits shall be such as based on the quantity of liquid waste discharging thereunto, and on the character and porosity of the surrounding soil and shall conform to the guidelines established in Table IV and Table VII.

(B) Use of seepage pits with septic tanks is acceptable only when soil conditions or topography are appropriate, and only with the approval of the Chairman. Seepage pits are not acceptable in limestone areas nor in localities where shallow wells are used.

(C) When more than one seepage pit is used, installation may be operated in series or in parallel. If

operated in series each pit shall be equipped with an inlet tee or ell. If operated in parallel a tee, wye, or distribution box shall be used. An outlet tee or ell shall be raised to prevent scum from floating into the second pit. (See Appendix, Figure 6).

(D) Effective absorption area of a seepage pit shall be calculated as the side area only below the inlet, exclusive of any hard span, rock or impermeable clay soil layer. Required seepage pit size shall be determined from Table IV and VII.

(E) A minimum depth of 4 feet of porous formation shall remain or be provided at the bottom of each pit. Pits less than 20 feet deep shall have an inside diameter established by Table VII. No pit excavation shall extend into the water table. Where ground water is encountered the bottom of the pit shall be backfilled with clean coarse sand at least 3 feet above the water.

TABLE VII GUIDELINES FOR SIZES OF SEEPAGE PITS Seepage Pit Dd = A		
No. of Pits	Diameter	Depth Ft.
1	6' diameter	14' - 0 "
1	8' diameter	13' - 6 "
1	8' diameter	15' - 6 "
2	6' diameter	13' - 6 "
2	8' diameter	12' - 0 "
2	8' diameter	13' - 6 "
1	6' diameter	17' - 6 "
2	6' diameter	12' - 0 "
2	6' diameter	14' - 6 "
3	6' diameter	14' - 6 "
3	6' diameter	16' - 0 "
4	6' diameter	16' - 0 "
2	6' diameter	12' - 0 "
2	6' diameter	16' - 0 "
2	8' diameter	15' - 0 "
3	8' diameter	14' - 5 "
3	8' diameter	16' - 0 "
4	8' diameter	16' - 0 "
2	6' diameter	14' - 6 "
2	8' diameter	15' - 0 "
3	8' diameter	12' - 6 "
4	8' diameter	13' - 6 "
5	8' diameter	12' - 0 "
5	8' diameter	16' - 0 "
2	8' diameter	13' - 6 "
3	6' diameter	16' - 0 "
3	8' diameter	14' - 6 "
4	8' diameter	16' - 0 "
5	8' diameter	14' - 0 "
6	8' diameter	14' - 0 "
Note: 1. If two or more seepage pits are being used as a leaching pits, the distance between seepage pit should be at least 3 times the diameter of seepage pits. 2. Minimum distance of at least 20' ft. for pits over 20' ft. in depth. 3. Seepage pits should not be used when percolation rates are less than 1" - 60 min. "		

(F) Pipe with tight joints shall be used in connecting the septic tank to the pit.

(G) All seepage pits shall be either lined or filled with coarse stone. The lining may be brick, stone, block, or similar durable materials, laid in cement mortar above the inlet and with tight butted joints below the inlet. The annular space between the lining and the earth wall shall be filled with clean 3/4 inch crushed rock or gravel. Where caving is possible, seepage pits shall be lined with concrete building blocks, stones or pre-cast ring or similar materials.

(H) Provide for each pit a 4 inch thick concrete top, not less than 12 inches or more than 18 inches in diameter or of equal area for inspection and cleaning purposes. The top shall bear on at least 12 inches of soil around the pit, or on top of the pit wall. The top shall be not more than 18 inches below the finished grade.

(I) All brick or block used in seepage pit construction shall have a minimum compressive strength of twenty-five hundred (2,500) pounds per square inch.

(J) The bottom of the pit is not compacted for absorption. It should be noted therefore that a 6-foot-diameter pit has 28.26 square feet of absorption area per foot of depth while an 8-foot-diameter pit has 25.14 square foot of wall area per foot of depth.

(Effective May 26, 1996)

INSPECTION AND CERTIFICATE OF OCCUPANCY

2401-13-28 Inspections and Notice

(A) Each project shall be subject to regular inspections by representatives of the Environmental Quality Protection Board to assure that construction of septic tanks, leaching fields, seepage pits, disposal fields, subsurface absorption fields, toilet facilities and connections to public sewers and any and all other related construction is in compliance with approved plans and specifications, and in accordance with the Environmental Quality Protection Board regulations.

(B) The EQPB must be notified twenty-four (24) hours in advance of any concrete pouring and all such concrete work must be performed in the presence of an EQPB Inspector.

(C) All construction work such as septic tank or seepage pits, and leaching field installation must be inspected by an EQPB inspector prior to covering or concealment.

(D) Failure to comply with the requirements of this Section may result in unnecessary delays to the project or a suspension of work or denial of a Certificate of Occupancy and an order to remove or uncover portions or all of the offending structures.

(Effective May 26, 1996)

2401-13-29 Final Inspection

After completion of the project, final inspection by the EQPB shall be conducted on these disposal systems, sewer connections and toilet facilities to ensure that he work was performed in accordance with the approved plans and specifications issued as part of

the permit and that EQPB regulations and requirements are met.

(Effective May 26, 1996)

2401-13-30 Certificate of Occupancy

After a final inspection satisfactory to the EQPB has been performed on the project pursuant to Section 2401-13-29, and said inspection indicates that the work performed was done in accordance with approved plans and specifications and has met all EQPB requirements, the Chairman shall issue a Certificate of Occupancy.

(Effective May 26, 1996)

TEMPORARY TOILET FACILITIES (TTF)

2401-13-31 Temporary Toilet Facilities Required

Temporary Toilet Facilities (TTF), also known as Type 4 toilet facilities, shall be provided for:

- (A) Any construction job-site where working toilets connected to an approved type sanitary disposal system are insufficient or unavailable or such facilities are determined to be not readily available for the needs of the employees;
- (B) The number of facilities required, whether permanent, temporary or combination thereof shall be in accordance with the requirements detailed in Table VIII.
- (C) The term readily available as used in Division A of this Section, shall be defined as being within 300 feet of the work area. Facilities which are within this distance but are not under the direct control of the developer/contractor shall require a written authorization/certification from the owner of such facilities that unrestricted access to these toilet facilities will be available to the contractor's workers for the entire period of the construction project.
- (D) All arrangements for sanitary facilities must be made and in place before any clearing or construction may proceed.

(Effective May 26, 1996)

2401-13-32 Construction Standards

- (A) Temporary Toilet Facilities may be chemical, recirculating or combustion providing they comply with existing Palau Codes.
- (B) The minimum number of TTF required for construction site shall be based in accordance with Table VIII.
- (C) Any construction site requiring EQPB approval for permitting will provide proof that the minimum required number of toilet facilities are available or will be available for the period of time that the permits are valid.

(Effective May 26, 1996)

TABLE VIII NUMBER OF TTF REQUIRED FOR CONSTRUCTION SITES	
No. of Employees	Minimum Number of Units
1 to 15	1
16 to 30	2
31 to 51	3
52 to 72	4
73 to 93	5
Over 93	1 Add'l unit per 20 employees

2401-13-33 Failure to Provide Required TTF

In addition to any other remedies provided by law, any construction site not complying with the minimum number of TTF will be given a written warning and given 48 hours to comply. Failure to comply within the given period will result in the revocation of the EQPB approval required for the building permit which will temporarily suspended all construction at this site.

(Effective May 26, 1996)

**CLEANING WASTEWATER DISPOSAL SYSTEMS
AND DISPOSAL OF WASTEWATER**

2401-13-34 Registration Certificate Required

No person shall engage in the business of cleaning individual sewage disposal systems or disposing of the wastes there from, unless a Registration Certificate has first been secured from the EQPB.

(Effective May 26, 1996)

2401-13-35 Standards for Operation

Such cleaning and/or disposal operations shall be conducted in conformity with the following requirements and in accordance with all applicable regulations:

- (A) The name and address of the person shall be legibly lettered on both sides of each vehicle used for cleaning purposes;
- (B) Every vehicle used for cleaning purposes shall be equipped with a watertight tank or body and be maintained in a clean and sanitary condition. Sewage waste shall not be transported in an open body vehicle;
- (C) All portable receptacles used for transporting liquid or solid waste shall be watertight, equipped with tight-fitting lids, and shall be cleaned daily;
- (D) All pumps and hose lines shall be properly maintained so as to prevent leakage;
- (E) Approval in writing shall be obtained from the Chairman for every site at which the person plans to discharge the waste material collected. The approval

may be given after consultation with the Bureau of Public Works;

(F) The hose or any similar device used for discharging waste must be inserted into the earmarked manhole to a depth of approximately two (2) feet, to prevent any spray or spillage into the surrounding area;

(G) Every precaution must be taken to prevent any public nuisance or health hazard which may be caused by the cleaning and disposal operations service.

(Effective May 26, 1996)

2401-13-36 Registration Certificate Standards

(A) A registration certificate shall be issued to any person properly making application therefore, who is not less than twenty-one (21) years of age, has successfully demonstrated the ability to handle the equipment, and only after the place or places and manner of disposal of the cleanings proposed by said applicant are approved by the EQPB.

(B) A certificate issued pursuant to this Section is not transferable and shall expire December 30th of each year. A certificate may be renewed for an ensuing year by making application for renewal, upon determination of the applicant's observance of sanitary laws, ordinance, and directions. Such application shall have the effect of extending the validity of the current registration certificate until a new certificate is issued or the renewal of the registration is denied by the EQPB.

(C) Non-compliance of the requirements of these regulations may result in the revocation or suspension of the registration certificate. Any applicant whose registration certificate is suspended must correct all discrepancies noted in the suspension within 30 days, otherwise the registration certificate may be revoked.

(D) Registration under these regulations shall not be construed as impairing in any manner, the existing powers and duties of the other national government agencies of the Republic of Palau or the state governments of the Republic of Palau under other laws.

(Effective May 26, 1996)

MAINTENANCE

2401-13-37 General

(A) Toilet facilities, wastewater disposal systems and connections from the building drain to the public sewer shall be maintained at all times in good repair and in a clean and sanitary condition.

(B) The owner of the property is primarily responsible for the completeness of all structures, good repair, cleanliness and maintenance of the toilet facilities, wastewater disposal systems and connections from a building drain to the public sewer in compliance with

all applicable regulations of the Republic of Palau, and any other standard sanitation practices.

(Effective May 26, 1996)

2401-13-38 Septic Tank Maintenance

(A) Owners of septic tanks or seepage pits shall empty and clean the tank or pit when necessary, and the contents disposed of in such place and manner as shall be authorized by the Chairman.

(B) Septic tanks should be inspected by the owner at intervals of no more than 2 years to determine the rates of scum and sludge accumulation. The inlet and outlet structures and key joints should be inspected for damage after each pump-out.

(C) The septic tank should be cleaned whenever either of the following conditions exists:

(1) The bottom of the scum layer is within 3 inches of the bottom of the outlet device; or

(2) The sludge level is within 8 in. of the bottom of the outlet device.

(D) Septic tank sludges shall be disposed of by hauling to a sewage treatment facility whenever this is possible. When no treatment facilities are available, may be disposed of by sludge spreading or spraying, in permitted sites only, by licensed pumpers. Permit for sludge spreading sites shall be obtained from PEQPB [sic] and approved by the Chairman.

(Effective May 26, 1996)

2401-13-39 Prevention of Odor

All non-water carriage sewage disposal pits including those for Type 3 toilet facilities shall be covered as often as necessary with earth or lime to exclude flies and prevent odor.

(Effective May 26, 1996)

2401-13-40 Abandonment of System

Each septic tank, seepage pit, disposal field, subsurface absorption field, and cesspool shall be properly filled with earth when replaced by an approved new system. Privy pits including those for Type 3 toilet facilities shall be sealed with earth when the level of sewage reaches within two (2) feet of the ground surface.

(Effective May 26, 1996)

2401-13-41 Repair, Replacement, Removal

Any toilet facility or sewage disposal system or connections from a building drain to a public sewer which fails to comply with the provisions of these regulations shall be repaired, altered, cleaned emptied or removed and replaced by the owner of the property at the owner's sole cost. The Board may issue any Order deemed necessary setting forth the

parameters, terms and conditions of such repair, alteration, cleaning emptying or removal and replacement.

(Effective May 26, 1996)

2401-13-42 Grease Traps

In order to be effective, grease traps shall be operated properly and cleaned regularly to prevent the escape of appreciable quantities of grease. Cleaning shall be done when 75% of the grease-retention capacity has been reached.

(Effective May 26, 1996)

ENFORCEMENT

2401-13-43 Disposal of Sewage Prohibited

It shall be unlawful to dispose of treated or semi treated sewage into any river, stream, pond, well, reservoir, body of fresh water, marine water or onto the ground unless prior written consent is given by the Board or its authorized representative.

(Effective May 26, 1996)

2401-13-44 Stop Work Orders

In the event a project is commenced without a permit, or work performed is not in accordance with approved plans and specifications or any approved changes or revisions thereto, or unsafe construction practices are found and continued after sufficient warnings by the Chairman, a Stop Work Order shall be issued and take effect until the conflict is resolved.

(Effective May 26, 1996)

2401-13-45 Compliance Orders

(A) In addition to any other remedies provided by law, when an investigation reveals that in the course of construction, toilet facilities or sewage disposal systems or building drain connections to a public sewer have been constructed or altered in violation of any provision of the construction permit or of these regulations, the EQPB may issue an administrative order directing those persons not complying with the requirements of the permit or these regulations to:

(1) Comply forthwith; or
(2) In the event of a threatened violation, take appropriate remedial or preventive action.

(B) A person who is adversely affected by such order may request, within five (5) days of receipt of such order, the EQPB to hold a public hearing on the order.

(Effective May 26, 1996)

2401-13-46 Penalties

Any person who violates any provision of these regulations shall be subject to a civil penalty not to exceed \$1,000 per day of such violation. Such funds shall be deposited into a Republic of Palau Account, to be used to support the EQPB's programs.

(Effective May 26, 1996)

MISCELLANEOUS PROVISIONS

2401-13-47 Severability

If any provision of these regulations or the application of any provision of these regulations to any person or circumstance is held invalid, the application of such provision to other persons or circumstances and the remainder of these regulations shall not be affected thereby.

(Effective May 26, 1996)

2401-13-48 Repealer

The regulations contained herein shall replace the Republic of Palau Environmental Quality Protection Toilet Facilities Regulations currently in effect in the Republic of Palau.

(Effective May 26, 1996)

APPENDIX A FIGURES AND DIAGRAMS

FIGURE 1

SAMPLE PLOT PLAN

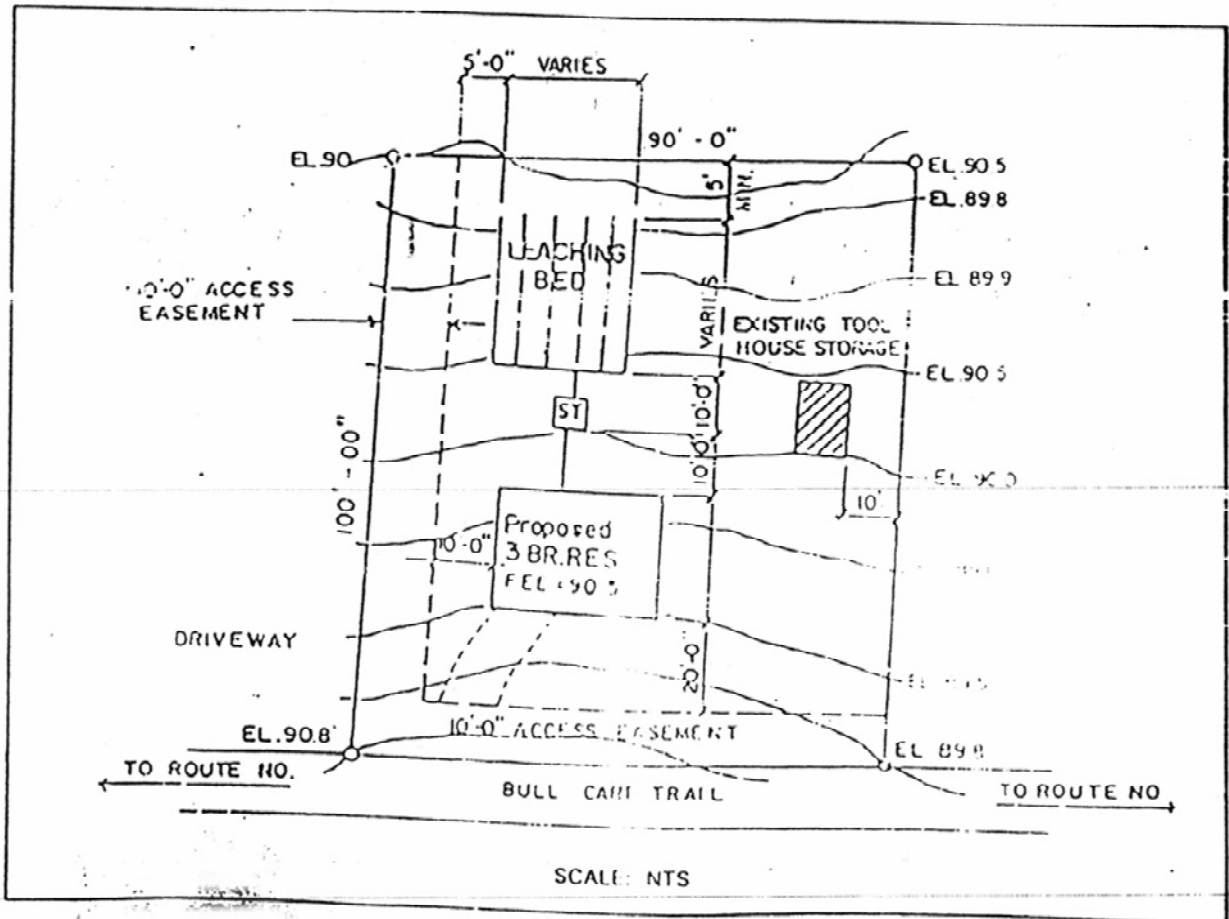
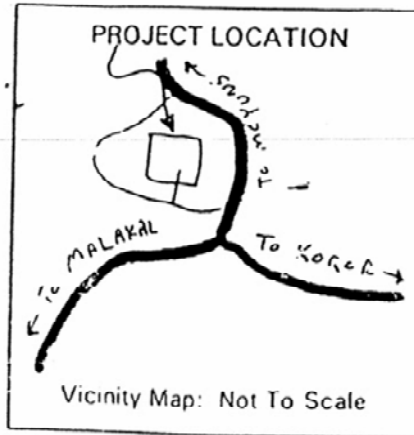
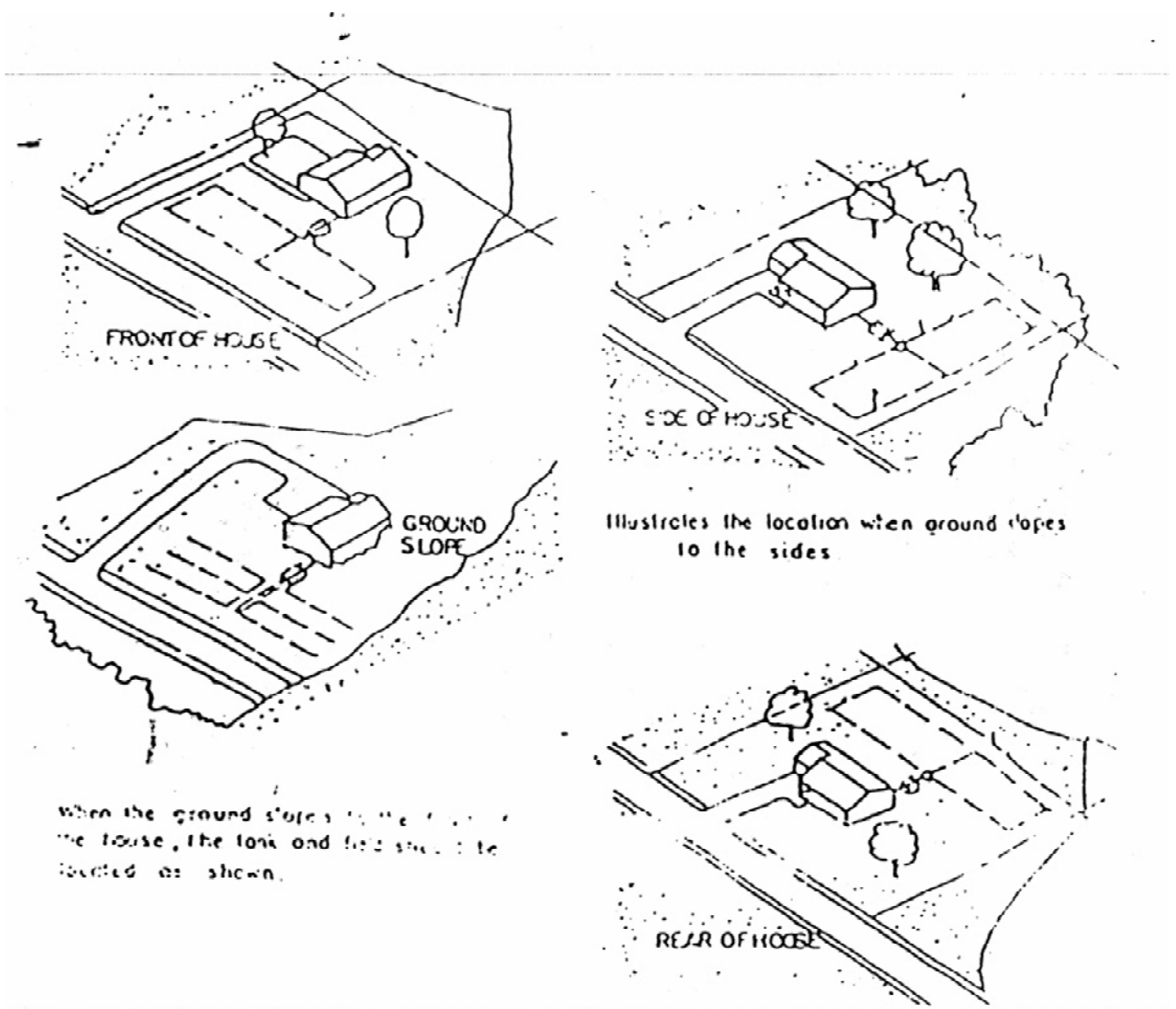


FIGURE 2
SEWAGE DISPOSAL SYSTEM



When the ground slopes to the front of the house, the tank and field should be located as shown.

Illustrates the location when ground slopes to the sides.

Illustrates the location when ground slopes to the rear.

In Locating Septic Tank - Consider Future Extension of a Public Sewer System That a Minimum Length of the Building Sewer Will Be Necessary

FIGURE 3
SINGLE COMPARTMENT SEPTIC TANK PLAN/DESIGN

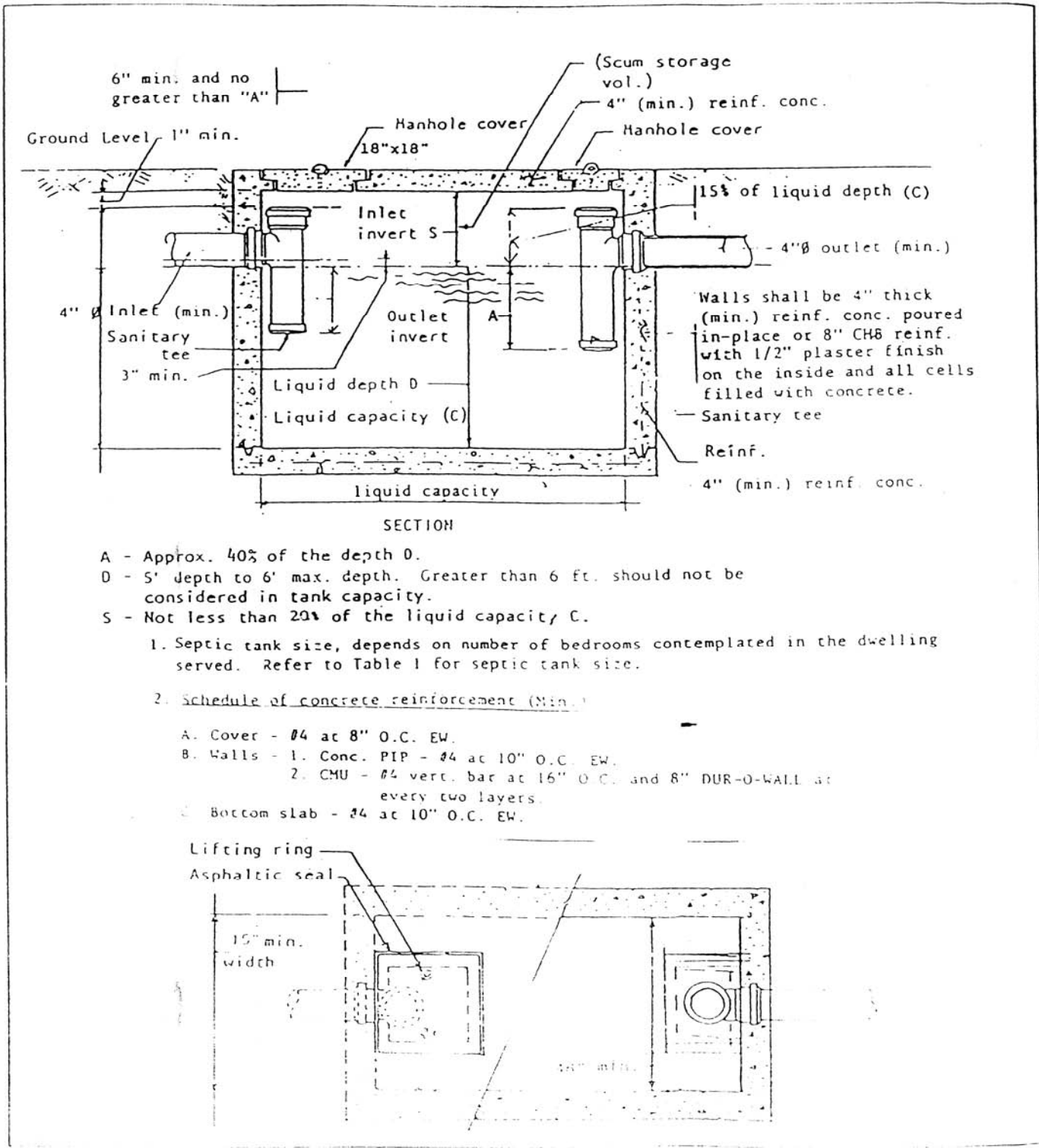


FIGURE 3A

DOUBLE COMPARTMENT SEPTIC TANK PLAN/DESIGN

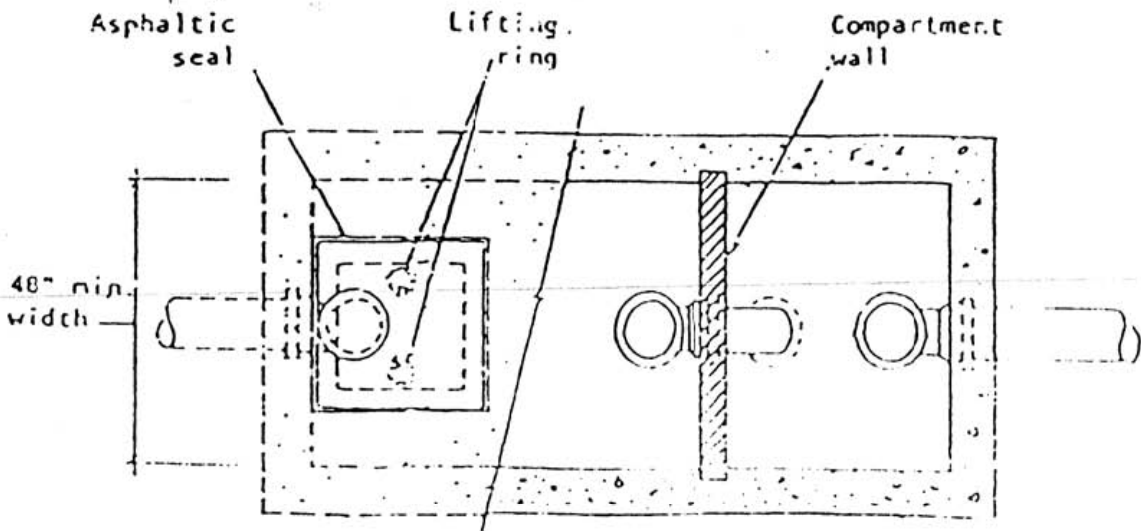
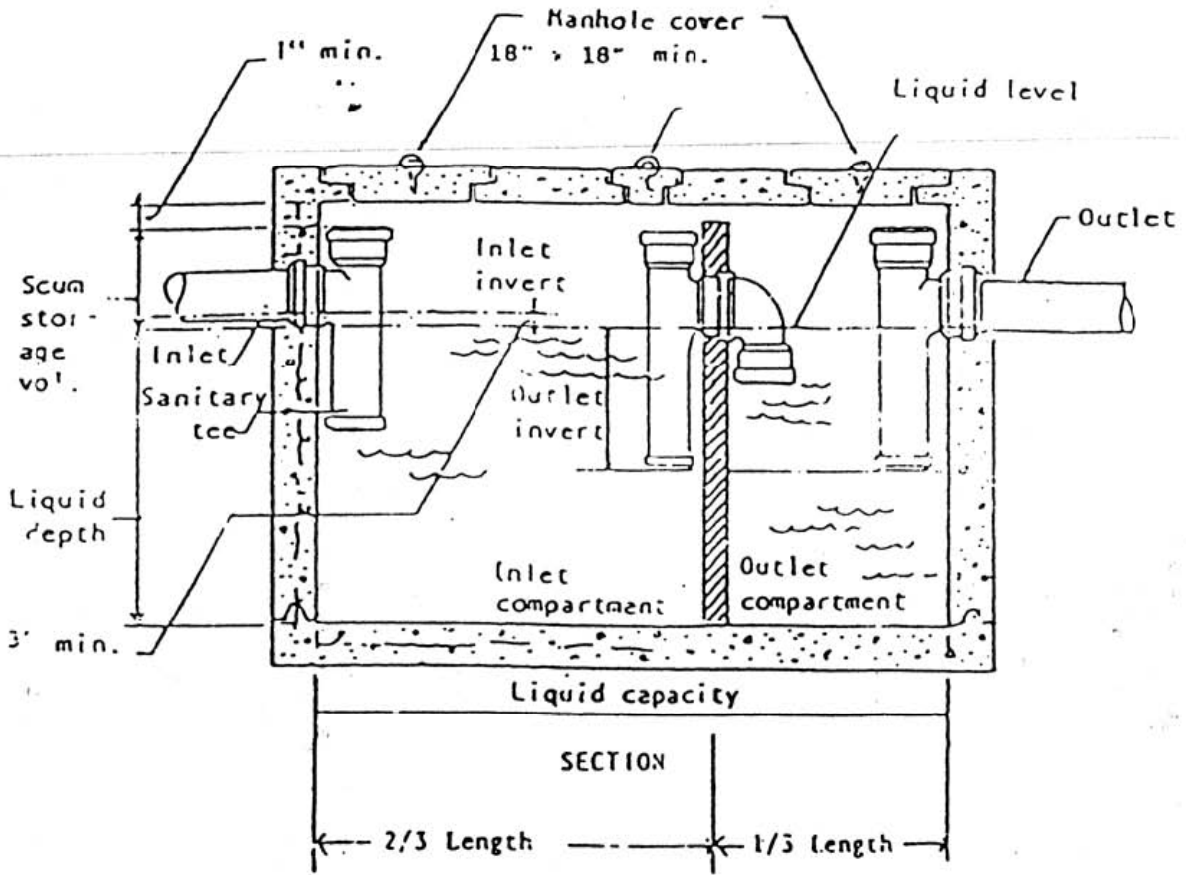


FIGURE 4

PERCOLATION TEST METHODS

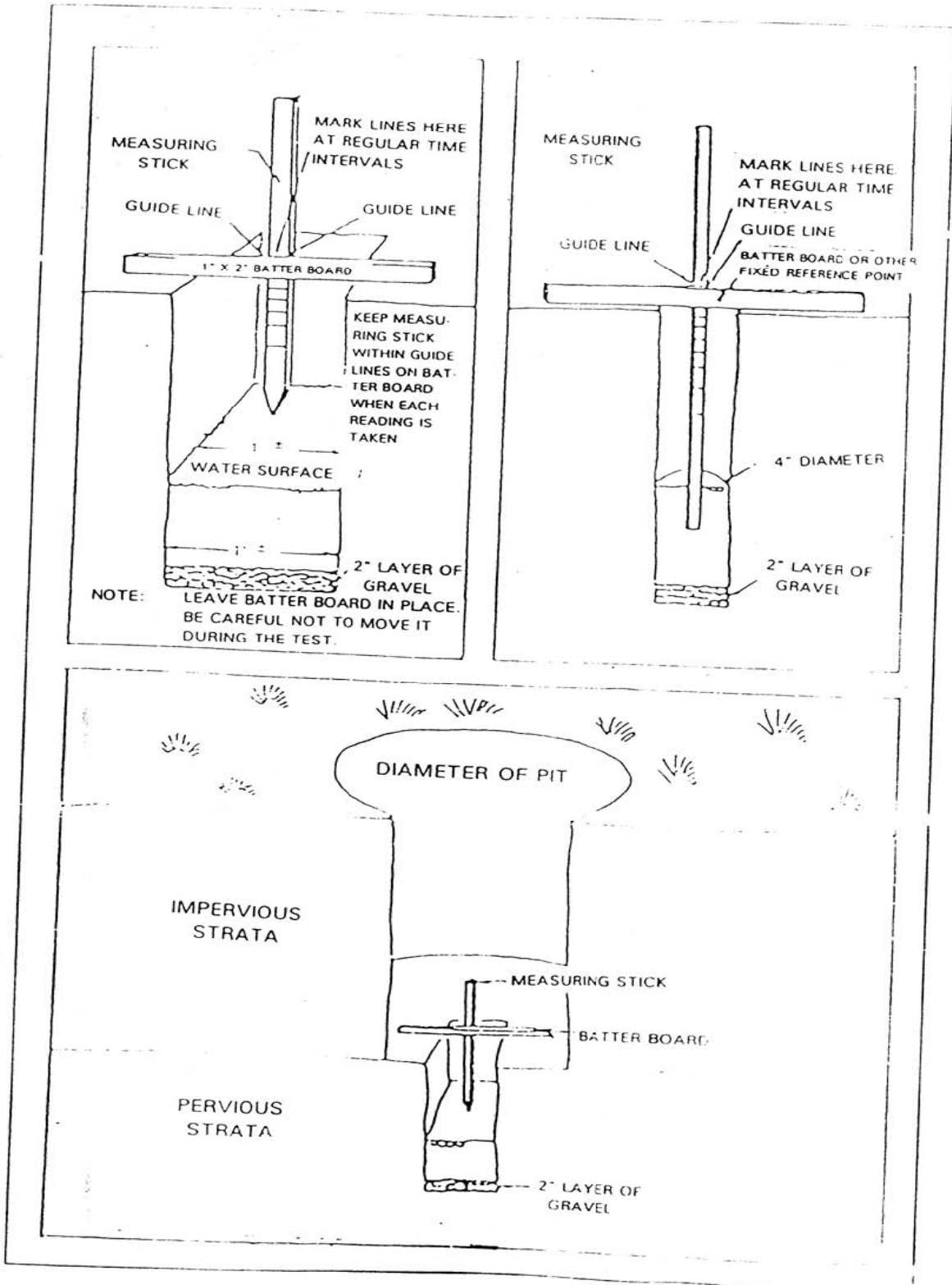


FIGURE 5

TYPICAL LEACHFIELDS

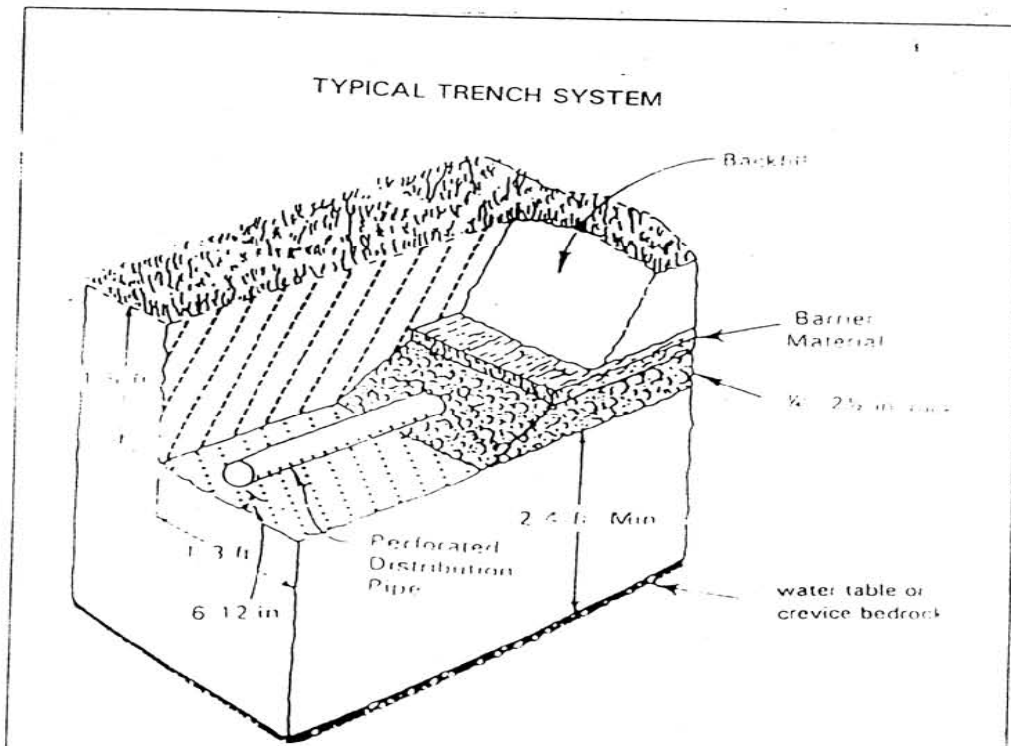
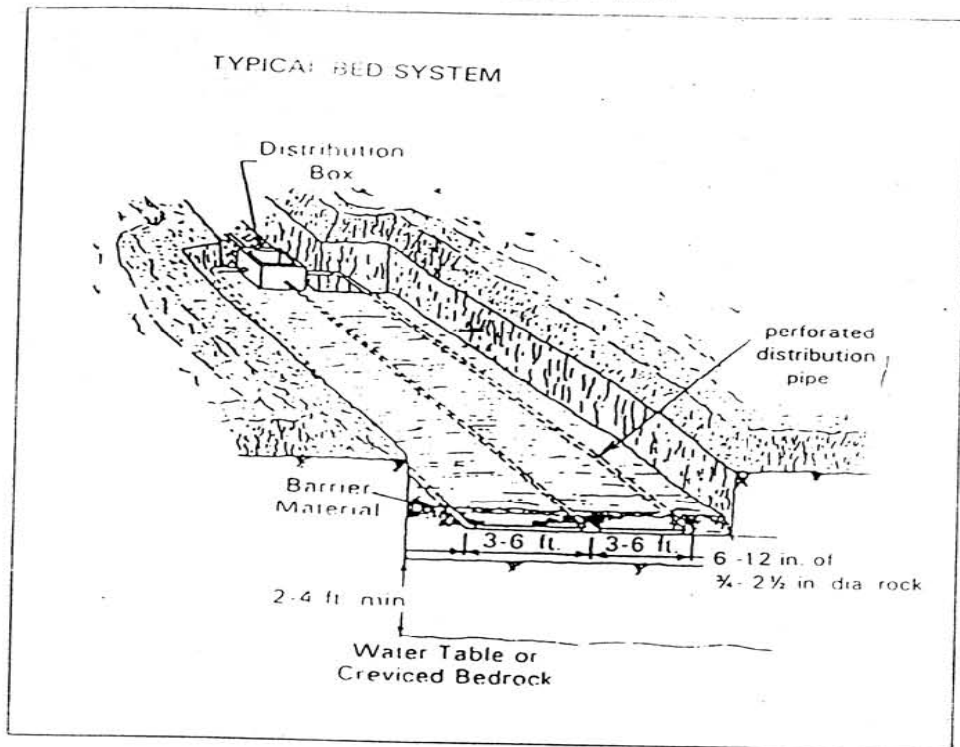
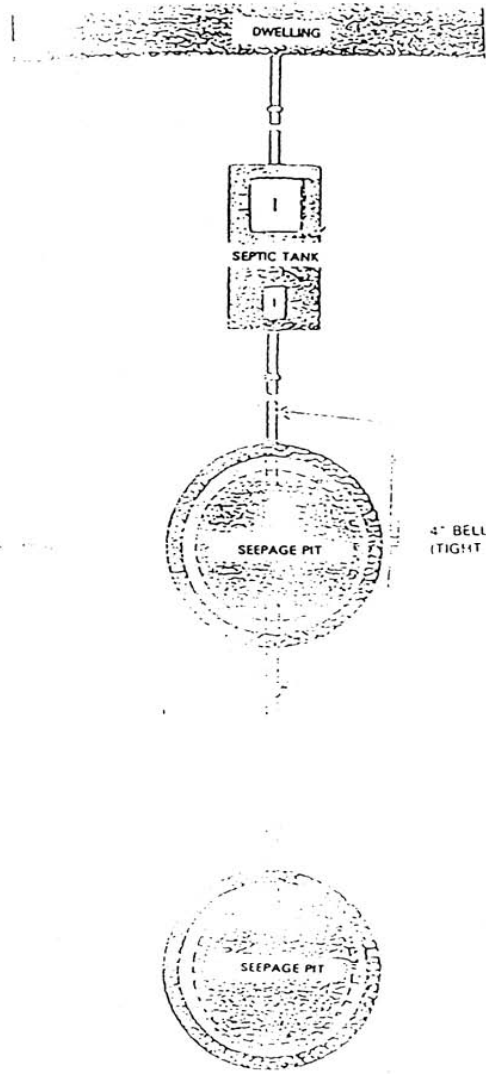


FIGURE 6

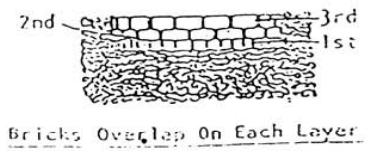
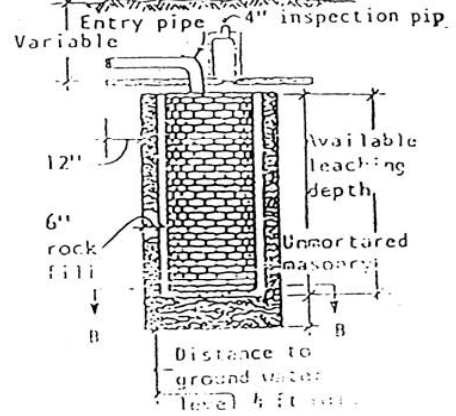
SEEPAGE PIT



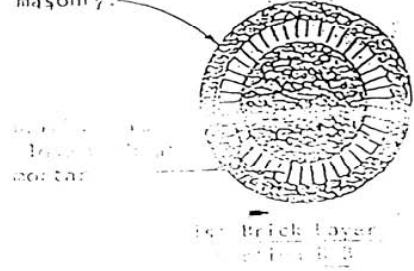
4" BELL AND SPIGOT PIPE (TIGHT JOINTS)

"D" SHOULD BE AT LEAST 3 TIMES THE DIAMETER OF THE SEEPAGE PIT
 MINIMUM "D" AT LEAST 20 FEET FOR PITS OVER 20 FEET DEEP

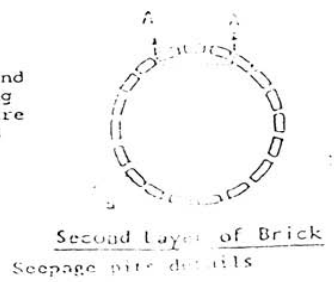
Precast reinforced concrete slab not resting on lining



Place 6" coarse aggregate (1/2" to 1") around un-mortared masonry.



Second and remaining layers are laid end to end



Second layer of Brick
 Seepage pit details

CHAPTER 2401-31 SOLID WASTE MANAGEMENT REGULATIONS

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General Requirements

2401-31-01 Authority

These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board pursuant to the authority granted by Republic of Palau Public Law No. 1-58. These regulations shall have the force and effect of law.

(Effective May 26, 1996)

2401-31-02 Purpose

The purpose of these regulations is to establish minimum standards governing the design, construction, installation, operation, and maintenance of solid waste storage, collection and disposal systems. Such standards are intended to:

- (A) Prevent pollution of the drinking and recreational waters of the Republic of Palau.
- (B) Prevent air and land pollution.
- (C) Prevent the spread of disease and the creation of nuisance.
- (D) Protect the public health safety.
- (E) Conserve natural resources and;

(F) Preserve and enhance the beauty and quality of the environment.

(Effective May 26, 1996)

2401-31-03 Definitions

As used herein, unless the context otherwise requires, the term:

(A) "All-Weather Access Road" means a roadway designed, constructed, and maintained to accommodate vehicular traffic under all climatic conditions.

(B) "Automobile Graveyard" means any establishment or place of business which is maintained, used or operated for storing, keeping, buying, or selling wrecked, scrapped, ruined or dismantled motor vehicles or motor vehicle parts.

(C) "Baling" means the mechanical process of compression or binding of solid waste materials into bales.

(D) "Board" or "EQPB" means the Republic of Palau Environmental Quality Protection Board or its authorized representative.

(E) "Bulky Waste" means large items of solid waste such as household appliances, furniture, motor vehicles, trees, branches, stumps, and other oversize wastes whose large size prevents or complicates their handling by normal solid waste collection, processing, or disposal methods.

(F) "Chairman of Palau Environmental Quality Protection Board" or "Chairman" means the Chairman personally or the Chairman's duly authorized representative.

(G) "Collection" means the act of removing solid waste.

(H) "Commercial Solid Waste" means all types of solid wastes generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes.

(I) "Compactor Collection Vehicle" means a vehicle with an enclosed body containing mechanical devices that convey waste into the main compartment of the body and compress it into a smaller volume of greater density.

(J) "Farm" means any plot of land used for the production of crops, livestock, or horticulture products.

(K) "Farm Products Processing Facility" means a facility which receives and/or processes farm products, excluding livestock and dairy products.

(L) "Food Waste" means the organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage.

(M) "Generation" means the act or process of producing solid waste.

(N) "Hazardous Waste" means any waste or combination of wastes which pose a substantial present or potential hazard to human health or the environment because such wastes are non-

degradable or persistent in nature, or because they may otherwise cause or tend to cause detrimental cumulative effects.

(O) "Incineration" means the destruction of solid waste by burning in a furnace designed for the purpose wherein solid waste is essentially reduced to ash, carbon dioxide and water vapor.

(P) "Incinerator" means an engineered combustion device specifically designed for volume reduction, by controlled burning of combustible solid waste.

(Q) "Infectious Waste" means:

(1) Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies;

(2) Laboratory wastes, such as pathological specimens (such as tissues, blood, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites (any substance that may harbor or transmit pathogenic organism) attendant thereto; or,

(3) Surgical operating room specimens and disposable fomites attendant thereto, and similar disposable materials.

(R) "Institutional Solid Waste" means solid wastes generated by education, health care, correctional, or other institutional facilities.

(S) "Junk" means old or scrap copper, brass, rope, rags, batteries, paper, trash, rubber debris, waste, or junked, dismantled, or wrecked automobiles, or parts thereof, iron, steel, or other old or scrap ferrous or nonferrous material.

(T) "Landfill" means a land area used for the disposal of solid wastes.

(U) "Leachate" means water that has percolated through solid waste and contains dissolved or suspended portions from the solid waste.

(V) "Lift" means a compacted layer of solid waste and its overlying earth or coral cover in a landfill.

(W) "Milling" means the mechanical process of materials size reduction by grinding, crushing, chipping, or shredding.

(X) "Permit" means a written authorization issued by the Board, bearing the signature of the Chairman, which by its conditions may authorize the permittee to construct, install, modify, or operate specified solid waste disposal facilities, conduct specified solid waste disposal activities or engage in the management of solid waste in accordance with specified limitations.

(Y) "Person" means the Republic of Palau, a state, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm, or company organized or existing under the laws of the Republic or of any state or country, a lessee or other occupant of property, or an individual, acting singly or as a group.

(Z) "Pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant.

(AA) "Pollutant" means one or more substances or forms of energy which when present in the air, land, or water, are or may be harmful or injurious to human health or the environment, or which may unreasonably interfere with the enjoyment by people of life or property.

(BB) "Public Litter Receptacle" means a container provided for the public, as a convenience, for the sanitary placement of solid waste.

(CC) "Reclamation Facility" means a facility, including automobile graveyards, in which solid waste is stored dismantled or reprocessed into a new products in such a manner that the original products lose their identity.

(DD) "Residential Solid Waste" means the wastes generated by the normal activities of households, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes.

(EE) "Rubbish" means a general term for solid wastes and ashes, taken from residences, commercial establishments, and institutions.

(FF) "Salvaging" means the authorized removal of material from a solid waste disposal facility.

(GG) "Satellite Vehicle" means a small collection vehicle that transfers its load into a larger vehicle operating in conjunction with it.

(HH) "Scavenging" means the unauthorized removal of material from a solid waste disposal facility.

(II) "Shredding" means the mechanical process of material size reduction by cutting.

(JJ) "Sludge" means the accumulated semi-liquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved materials in irrigation return flows or other common water pollutants.

(KK) "Solid Waste" means garbage, refuse, and other discarded solid materials including solid waste materials resulting from industrial and commercial operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or other substances in water sources, such as silt, dissolved or suspended solids in industrial wastewater effluents, dissolved materials in irrigation return flows or other common water pollutants. This definition is intended to include liquid waste materials such as waste oil, as well as pesticides, paints, solvents, and hazardous waste.

(LL) "Solid Waste Disposal Facility" means an intermediate facility, transfer station, landfill, composting plant, recycling or reclamation facility or any site used for the reduction, consolidation, conversion, processing or disposal of solid waste.

(MM) "Solid Waste Disposal System" means the entire process or part thereof of the storage, collection, transportation, processing and disposal of solid waste by any person engaging in such a process as a business or by any municipality, authority, state, or any combination thereof.

(NN) "Solid Waste Storage Container" means a receptacle used for the temporary storage of solid waste while awaiting collection and which restricts access to the waste by rainwater, vectors, and other animals.

(OO) "Storage" means the interim containment of solid waste after generation and prior to final disposal.

(PP) "Transfer Station" means a supplemental transportation facility used as an adjunct to solid waste route collection vehicles. Such a facility may be fixed or mobile and may include re-compaction of solid waste.

(QQ) "Treatment" means any activity or processing designed to change the physical form or chemical composition of wastes.

(RR) "Vector" means a carrier that is capable of transmitting pathogens from one organism to another.

(SS) "Wetlands" means those areas that are inundated or saturated with surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include salt water marshes, freshwater marshes, salt water swamps, freshwater swamps and cultivated wetlands.

(TT) "Working Face" means that portion of the landfill in which solid waste is deposited and compacted prior to the placement of an earth or coral cover.

(Effective May 26, 1996)

STORAGE REQUIREMENTS

2401-31-04 General Storage Requirements

(A) All solid waste shall be stored in such a manner that it does not constitute a fire, health, or safety hazard or provide food or harborage for vectors.

(B) All solid waste shall be contained or bundled so as not to result in spillage.

(Effective May 26, 1996)

2401-31-05 Food Wastes

All solid waste containing food wastes shall be securely stored in covered or closed containers which are:

(A) Nonabsorbent;

(B) Leakproof;

(C) Durable;

(D) Easily cleanable (if reusable); and,

(E) Designed for safe handling.

(Effective May 26, 1996)

2401-31-06 Building and Facility Design

(A) In the design of all buildings or other facilities which are constructed or modified, there shall be

storage facilities to accommodate the volume of solid waste anticipated.

(B) Storage facilities must be easily cleaned and maintained, and allow for efficient and safe collection.

(Effective May 26, 1996)

2401-31-07 Bulky Wastes

Storage of bulky wastes shall include, but is not limited to, removing all doors from large household appliances and covering the items to reduce the problems of vector harborage, and the accumulation of solid waste and water in and around the bulky items.

(Effective May 26, 1996)

2401-31-08 Waste Containers

(A) Containers shall be of an adequate size and in sufficient numbers to contain all food wastes, rubbish, and ashes that a residence or other establishment generates in the period of time between the collections.

(B) Reusable waste containers which are emptied manually shall not exceed 75 pounds when filled or have a capacity of more than 55 gallons in volume and shall be capable of being serviced without the collector coming into physical contact with the solid waste.

(C) Reusable waste containers shall be constructed of corrosion resistant metal or other material which will not absorb water, grease, or oil.

(D) Reusable containers shall be leak-proof, including sides, seams, and bottoms, and be durable enough to withstand anticipated usage without rusting, cracking, or deforming in a manner that would impair serviceability.

(E) The interior of the reusable container shall be smooth without interior projections or rough seams which would make it difficult to clean or interfere with its emptying.

(F) The exterior of the Reusable container should be safe for handling with no cracks or jagged edges.

(G) Containers shall have covers which are tight-fitting to resist the intrusion of water and vectors, and should be equipped with a suitable handle.

(H) Containers shall be stored on a firm, level, well-drained surface which is large enough to accommodate all of the containers and which is maintained in a clean, spillage-free condition.

(Effective May 26, 1996)

SOLID WASTE COLLECTION

2401-31-09 Collection Safety

(A) Collection systems shall operate in such a manner as to protect the health and safety of personnel associated with the operations.

(B) All solid waste personnel shall receive instructions and training in safe container and waste handling techniques, and in the proper operation of collection equipment.

(C) Personal protective equipment such as gloves, safety glasses, respirators, and footwear shall be used by collection employees, as appropriate.

(Effective May 26, 1996)

2401-31-10 Collection Equipment

(A) The equipment used in the collection and transportation of solid waste shall be constructed, operated, and maintained in such a manner as to minimize health and safety hazards to solid waste management personnel and the public, and to prevent the propagation or attraction of vectors and the creation of nuisance.

(B) Collection vehicles shall be maintained and serviced according to manufacturer's recommendations, and receive periodic vehicle safety checks, including, but not limited to, inspection of brakes, windshield wipers, taillights, backup lights, audible reverse warning devices, tires, and hydraulic systems.

(C) Any irregularities in the collection equipment shall be repaired before the vehicle is used.

(D) Collection vehicles shall be cleaned thoroughly at least once a week.

(Effective May 26, 1996)

2401-31-11 Collection Frequency

(A) Solid wastes shall be collected with frequency sufficient to inhibit the propagation or attraction of vectors and the creation of nuisance.

(B) Solid wastes which contain food wastes shall be collected at a minimum of once during each week.

(C) Bulky wastes shall be collected at a minimum of once every three (3) months.

(Effective May 26, 1996)

2401-31-12 Collection Operations

(A) The collection of solid wastes shall be conducted in a safe, efficient manner, strictly obeying all applicable traffic and other laws.

(B) The collection vehicle operator shall be responsible for:

(1) Immediately cleaning up all spillage caused by the operator's operations;

(2) Protecting private and public property from damage resulting from all operations; and,

(3) Creating no undue disturbance of the peace or quiet in residential areas in and through which operations are undertaken.

(C) Records shall be maintained detailing all costs (capital, operating, maintenance) associated with the collection system. These records shall be used for scheduling maintenance and replacement, for

budgeting, and for systems evaluation and comparison.

(D) The collection system shall be reviewed on a regular schedule to assure that environmentally adequate, economical, and efficient service is maintained.

(Effective May 26, 1996)

SOLID WASTE MANAGEMENT RESPONSIBILITY AND FACILITY STANDARDS

2401-31-13 Solid Waste Management Responsibility

(A) The aesthetic, non-hazardous and sanitary storage of solid waste is the responsibility of the person owning, operating or managing the property, premise, business establishment or industry where the solid waste is accumulated.

(B) A person not included in Section 2401-31-22 owning, operating or managing a property, premise, business establishment or industry has the responsibility of removing accumulated solid waste to an approved disposal facility. Contractual or other agreements for the removal of accumulated solid waste shall not relieve a person of this primary responsibility.

(C) Solid waste shall be removed to an approved solid waste disposal facility, prior to creating nuisance conditions.

(D) A person sponsoring any public activity, including but not limited to, recreational, sporting, or entertainment events, is responsible for the collection, storage, transportation and disposal of all solid waste generated as a result of the event. Solid waste shall be disposed of in an approved solid waste disposal facility.

(E) The disposal of animal carcasses is the responsibility of the land owner or land occupant upon whose land the animal carcass is found to be creating a nuisance. On-site disposal of the carcass shall be by immediate burial, covered by at least two (2) feet of compacted earth, incineration or by other method approved by the Chairman.

(F) No person may deposit solid waste in, on or along a road right-of-way, street, trail, spur, turnaround, tunnel, drainage structure, water of the Republic, public recreation facility or other public or private property.

(G) The prohibition on solid waste disposal and deposition set forth in Division F of this Section shall not apply where:

(1) Such property is an authorized solid waste disposal facility, or

(2) The solid waste is deposited in a public litter receptacle.

(H) A person providing a litter receptacle for use by the public shall maintain the receptacle in a sanitary condition so as to prevent the propagation of flies, odors, and overflowing conditions.

(Effective May 26, 1996)

2401-31-14 Solid Waste Disposal Facility Standards

(A) Planning, design, construction, operation and maintenance of any solid waste disposal facility requiring a permit under the Solid Waste Management Regulations shall be in accordance with the rules and regulations of the Board and the terms and conditions of any permit issued.

(B) The Chairman may from time to time revise facility standards as the Chairman deems necessary. Such standards and revisions shall include procedures to ensure suitability of the site and the proper operation of the solid waste disposal facility.

(Effective May 26, 1996)

2401-31-15 Mandatory Requirements

A permittee shall be required to:

(A) Provide a permanent sign posted at the facility entrance identifying the facility, the days and hours of operations, the name of the operator, and other information relevant to the operation of the facility.

(B) Provide an all-weather access road negotiable by loaded collection vehicles from the public road to the working surface of the landfill.

(C) Provide adequate equipment and necessary measures to extinguish fires.

(D) Provide for effective methods and adequate storage of all solid waste so as to prevent the attraction, harborage, or breeding of vectors and to eliminate conditions harmful to human health or which create safety hazards, odors, unsightliness and other public nuisance.

(Effective May 26, 1996)

2401-31-16 Discretionary Requirements

A permittee may be required to:

(A) Provide controlled access to the facility in the form of fences and gates that shall be kept locked when an attendant is not on duty.

(B) Install leachate and/or groundwater monitoring wells.

(C) Submit results of monitoring analysis for the detection of pollution or contamination resulting or tending to result from the operation of the facility, in accordance with methods and procedures acceptable to the Chairman at specified locations and intervals.

(D) Submit annual reports itemizing the type and quantity of solid waste disposed and times of facility operations.

(Effective May 26, 1996)

2401-31-17 Solid Waste Disposal Requirements

The disposal of solid waste on land shall comply with the following requirements:

(A) The disposal of solid waste in mangroves areas, or other areas subject to flooding or leachate generation shall be allowed only in conjunction with special procedures approved by the Board. These shall include, but are not limited to, best available technology for compliance with Divisions B through D, inclusive, of this Section.

(B) A vertical separation shall be maintained between the deposited solid waste and the anticipated high ground water table sufficient to prevent contamination of the water.

(C) Adequate measures shall be provided to manage surface water flow at the landfill site such that the flow of off-site drainage over a landfill will be minimized.

(D) Solid waste shall be deposited in a sanitary manner to prevent waste materials, leachate, or eroded soil particles from entering ground or surface waters without receiving the best practicable treatment or control.

(E) Salvaging or reclamation of materials shall be controlled at the facility to prevent interference with the prompt sanitary disposal of solid waste and the creation of any health hazard. Scavenging is prohibited.

(F) Live, domestic animals are prohibited within the landfill.

(G) The working face of a landfill shall be limited to as small an area as practicable and designed to confine windblown solid waste, which shall be collected and returned to the working face.

(H) All equipment provided for the operation of a landfill shall be adequate in number and performance capability to continuously operate the landfill in a safe and sanitary manner.

(I) Solid waste shall be spread in shallow layers not exceeding a depth of two (2) feet before compaction; each completed lift shall be no greater than eight (8) feet in vertical depth; and at least one (1) foot of compacted intermediate earth or other approved cover material shall be applied between lifts.

(J) Solid waste, processed by shredding, milling, baling, or other operation specifically approved by the Chairman, shall be compacted and covered with a minimum of four (4) inches of earth, coral, or other approved material at a frequency specified by permit requirements.

(K) A completed landfill or major portion thereof shall be covered with at least 18 inches of compacted earth or coral material, graded with proper drainage to minimize soil erosion and planted immediately after the grading work has been completed.

(L) Open burning at any storage, reclamation or disposal site shall be carried out only in conjunction with special procedures approved by the Chairman.

(M) Provisions shall be made to maintain the landfill for at least one year after termination of operation to prevent any health hazard or nuisance from occurring. Maintenance shall include, but is not limited to, repair of cracks or fissures, repair of areas where settling

occurs and control of problems which result from leachate or odors. Compliance with these requirements shall be a basis for future recommendation by the Board on land use.

(Effective May 26, 1996)

2401-31-18 Reclamation Facilities Standards

No person may operate or maintain a reclamation facility or permit the use of property for such an operation unless the operation complies with the following:

- (A) By-products removed during processing shall be handled in a sanitary and nuisance-free manner and shall be recycled or disposed of in a manner approved by the Chairman.
- (B) The facility shall be located at least 100 feet from any road or adjoining property and be so constructed as to prevent health hazards, public nuisances, and unsightliness.
- (C) Salvaging or reclamation of materials shall be controlled at the facility to prevent interference with the prompt sanitary disposal of solid waste and the creation of health hazards. Scavenging is prohibited.

(Effective May 26, 1996)

2401-31-19 Incineration Standards

- (A) Incinerator fly ash and residue generated from incineration of solid waste shall be treated and disposed of in a manner to prevent odor and dust nuisance and to control insects, birds, rodents and other vectors.
- (B) Salvaging or reclamation of materials shall be controlled at the facility to prevent interference with the prompt sanitary disposal of solid waste and the creation of health hazards. Scavenging is prohibited.

(Effective May 26, 1996)

2401-31-20 Transfer Station Standards

- (A) An all-weather road negotiable by loaded collection vehicles shall be provided from the entrance of the transfer station to the unloading area.
- (B) The unloading area shall be adequate in size and design to facilitate the unloading of solid waste from vehicles with minimum delay or confusion.
- (C) Salvaging or reclamation of materials shall be controlled at the facility to prevent interference with the prompt sanitary disposal of solid waste and the creation of health hazards. Scavenging is prohibited.

(Effective May 26, 1996)

2401-31-21 Hazardous Waste Disposal Standards

- (A) Each State shall be responsible to see that facilities for the disposal of hazardous waste materials are available.

(B) Any person desiring to dispose of hazardous waste materials shall notify the Chairman of this intention to do so. Such disposal shall be undertaken and completed only upon authorization of the Chairman.

(C) Any solid waste facility that accepts hazardous waste materials for disposal shall, in order to prevent damage to human health or the environment, dispose of such wastes in accordance with the following standards:

- (1) Infectious and pathological wastes generated at medical, veterinary, and other facilities shall be incinerated, sterilized or otherwise rendered safe prior to removal from these facilities for final disposal;
- (2) Toxic, caustic, volatile and flammable chemical waste may be incinerated or disposed of in a manner approved in writing by the Chairman prior to final disposal. If such wastes are directed to a landfill:
 - (a) they shall be rendered non-hazardous by chemical neutralization or stabilization prior to final disposal;
 - (b) they shall be disposed in a special trench or pit that is designed to retain the waste and prevent infiltration into ground and surface waters;
 - (c) the burial area shall be clearly marked with adequate warning signs and under no circumstances will smoking or open flames be allowed when these types of wastes are being disposed of; and,
 - (d) the burial site shall be recorded in the final plan of the completed site and made a part of the legal description of the property.

(D) Dewatered sludge from water treatment plants and dewatered digested sludge from waste-water treatment plants shall be mixed with the other deposited solid wastes at the landfill to prevent localized leaching. Disposal of raw sewage sludges, including sludges from septic tank pumping, are prohibited at all solid waste disposal facilities.

(E) The person responsible for any proposed new activity or modification to an existing activity which will cause the generation of hazardous wastes shall submit to the Chairman a hazardous waste management plan. The new or modified activity shall not commence prior to acceptance of the plan by the Chairman.

(F) Generators of waste oil shall adopt all practical measures to reduce waste quantities and to reuse or recycle waste oil to the maximum extent possible. Where it can be demonstrated that wastage is necessary, disposal methods shall be approved by the Chairman. Spreading of oil on roads, airports, or other areas for dust control shall be limited to areas which prevent contamination of potable ground water, surface waters, and areas under agriculture cultivation of food crops and must be undertaken in compliance with the Marine and Fresh Water Quality Regulations.

(Effective May 26, 1996)

2401-31-22 Private Waste Disposal System Standards

(A) The systems to be regulated under Sections 2401-31-14 through 2401-31-21 include:

- (1) A single family residential property on which solid waste is generated and disposed of on premises, due to distance from collection route or transfer station;
- (2) A farm on which the solid waste from the operation of the farm or from a farm products processing facility is disposed; and,
- (3) A landfill site which is used only by the owner or person in control of the premises to dispose of soil, rock, concrete or other non-decomposable material.

(B) Private disposal sites shall provide for adequate storage and screening of all solid waste so as to prevent the attraction, harborage, or breeding of insects or rodents and to eliminate conditions harmful to human health or which create safety hazards, odors, unsightliness and other nuisance.

(Effective May 26, 1996)

SOLID WASTE PERMIT SYSTEM

2401-31-23 Permit Required

It shall be unlawful for any person to establish, modify, or operate any solid waste disposal facility or a part thereof or any extension or addition thereto without a permit issued in accordance with the provisions of these regulations, except for those private systems as defined in Section 2401-31-22 of these regulations. *The planning, design, construction operations and maintenance of any solid waste disposal facility subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

(Effective May 26, 1996)

**(Amendment Effective March 12, 1999)*

2401-31-24 Permit Application

(A) Application for a permit shall be completed on forms furnished by the Board and shall include the following information:

- (1) Detailed plans and specifications for the facility, including initial and final topographies in intervals of 5 feet;
- (2) Certification of compliance with applicable land use and zoning requirements;
- (3) An environmental assessment of the proposed site prepared consistent with the Environmental Impact Statement Regulations; and,
- (4) An operations plan detailing:
 - (a) proposed operation and maintenance procedures;
 - (b) the equipment to be used;
 - (c) the population and area to served;
 - (d) the characteristics, amount and source of materials to be disposed of;
 - (e) the method of processed residue disposal;
 - (f) emergency operating procedures;

(g) the proposed ultimate use of the disposal site; and,

(h) a facility closure plan.

(B) All persons responsible for existing solid waste disposal facilities not currently holding a valid permit shall, by no later than March 27, 1989, apply for a permit to continue to operate. If such application is not made by March 27, 1989, all activities not in conformance with these regulations shall cease until such permit is issued, and activities come into regulatory compliance.

(C) Each signed application shall constitute an agreement that the applicant will assume responsibility for the construction or modification and operation of the facility in accordance with these regulations and applicable Water Quality, Air Pollution Control, Earthmoving, and all other Board Regulations.

(D) Every applicant for a permit shall pay a filing fee of \$20.00. This filing fee shall be submitted with the application and shall not be refunded nor applied to any subsequent application regardless of whether the application is approved, cancelled, or denied by the Chairman or withdrawn by the applicant.

(Effective May 26, 1996)

2401-31-25 Application Review

(A) The Chairman shall act on an application within a reasonable time, but not to exceed sixty (60) calendar days from the date the application is received by the Chairman, and shall notify the applicant in writing of the proposed approval or denial of the application. If the Chairman has not acted within the sixty (60) day period, the application shall be deemed to have been proposed for approval, provided that the Chairman may request additional information from the applicant and an additional thirty (30) calendar day period shall commence on the day the supplementary information is received.

(B) The applicant may submit answers and comments to the Chairman's response to the application.

(C) The Chairman shall consider the applicant's answers and comments and shall notify the applicant in writing of the final approval or intent to deny the application. No application for a permit shall be denied unless the applicant has had an opportunity for a public hearing by the Board.

(D) The Chairman shall approve an application for a permit if the application and the supporting information clearly show that the issuance thereof is in the public interest and that the solid waste disposal facility is designed, built, and equipped in accordance with the best practicable technology so as to operate without causing a violation of applicable rules and regulations.

(Effective May 26, 1996)

2401-31-26 Duration of Permit

The Chairman may grant a permit for any term, not to exceed five (5) years.

(Effective May 26, 1996)

2401-31-27 Permit Conditions

The Chairman may apply special conditions to the permit in order to ensure the protection of health and the protection of the environment.

(Effective May 26, 1996)

2401-31-28 Termination of Permitted Operations

It shall be the responsibility of the person to whom the permit was issued to inform the Chairman within thirty (30) days of the permanent termination of a solid waste processing or disposal at the facility for which the permit had been issued, by surrendering the permit to the Chairman.

(Effective May 26, 1996)

2401-31-29 Performance Bond

The Chairman may require a performance bond to guarantee proper operation and closure of a solid waste facility. This performance bond shall be forfeited should the permittee not comply with the provisions of the permit and proper closure procedures.

(Effective May 26, 1996)

VARIANCES

2401-31-30 Variance Application

(A) Every application for a variance shall be made on forms furnished by the Board and shall be accompanied by a complete and detailed description of present conditions, how present conditions do not conform to standards and other information as the Chairman may prescribe.

(B) Each application for a variance shall be reviewed in light of the descriptions, statements, plans, histories, and other supporting information submitted with the application, such additional information as may be submitted upon the request of the Chairman and the effect or probable effect upon the solid waste disposal standards established pursuant to these regulations.

(C) Whenever an application is approved, the Chairman shall issue a variance authorizing the design, construction, installation, operation and maintenance of solid waste disposal systems in excess of applicable standards.

(Effective May 26, 1996)

2401-31-31 Standards for Variance

(A) Approval of a variance shall be made only after a public notice is posted and, if responses indicate, a public hearing is held by the Board in the State where the solid waste system is situated.

(B) No variance shall be granted by the Chairman unless the application and the supporting information clearly show that:

(1) The continuation of the function or operation involved in the disposal of solid waste by the granting of the variance is in the public interest;

(2) The adverse effects of the solid waste disposal systems arising or proposing to arise does not substantially endanger human health or safety; and,

(3) Compliance with the rules, regulations or standards from which variance is sought would produce serious hardship without equal or greater benefits to the public.

(Effective May 26, 1996)

2401-31-32 Variance Issuance and Renewal

(A) Any variance or renewal thereof shall be granted within the requirements of these regulations and for time periods under conditions with the reasons therefore and within the following limitations:

(1) If the variance is granted on the ground that there is no practicable means known or available for the adequate prevention, control or abatement of the pollution involved, it shall be only until the necessary means for prevention, control or abatement become practicable and subject to the taking of any substitute or alternate measures the Chairman may prescribe. No renewal of variance granted under this subsection shall be allowed without a thorough review of known and available means of preventing, controlling or abating the pollution involved;

(2) The Chairman may issue a variance for a period not exceeding five (5) years;

(3) Every variance granted under this section shall include conditions requiring the grantee to perform air, discharge, effluent or noise sampling and report the results of such to the Chairman;

(B) Any variance granted pursuant to this section may be renewed, from time to time, on terms or conditions and for periods not exceeding five (5) years which would be appropriate on initial granting of a variance, provided that:

(1) The application for renewal has met all of the conditions specified in the immediately preceding variance; and,

(2) The renewal, and the variance issued in pursuance thereof, shall provide for a solid waste disposal system not different from that allowed pursuant to the terms of the immediately preceding variance at its expiration.

(C) No renewal shall be granted except on application therefor. Any such application shall be made at least sixty (60) days prior to the expiration of the variance.

(Effective May 26, 1996)

2401-31-33 Emergency Procedures

No variance granted pursuant to these regulations shall be construed to prevent or limit the application of any emergency provisions and procedures provided for by law.

(Effective May 26, 1996)

SOLID WASTE MANAGEMENT PLANS REQUIRED

**2401-31-34 Solid Waste
Management Plans**

(A) Any person who intends to apply for a solid waste permit shall provide solid waste management plans for Board review and approval. Solid Waste Management plans shall be required for each state regardless of their use of public and or individual disposal facilities.

(B) Information required in this management plan also required as part of the operations plan of Sections 2401-31-24 and 2401-31-25 of these regulations may be cited by reference in this management plan.

(C) Each Solid Waste Management Plan shall include but is not limited to:

- (1) A description of the community covered by the plan;
- (2) An assessment of the types of wastes generated by the community;
- (3) The type of facility to be used for solid waste disposal;
- (4) A map locating the facility site;
- (5) The relationship of the site to water disposal;
- (6) The types of roads available;
- (7) A list of equipment available for solid waste management;
- (8) The method of collection, transport and disposal;
- (9) An estimated yearly operational budget;
- (10) Operation and maintenance procedures;
- (11) An estimate of future needs; and,
- (12) Procedures for planning and design for future facilities.

(C) In the event that the applicant does not produce its own management plan, the Board could be requested to develop such a plan but the applicant must implement the plan developed by the Board.

(Effective May 26, 1996)

ENFORCEMENT

**2401-31-35 Enforcement and
Compliance**

Monitoring, enforcement and court actions for implementation of regulations contained herein shall be conducted in accordance with 24 Palau National Code Sections 161 to 172, inclusive.

(Effective May 26, 1996)

MISCELLANEOUS PROVISIONS

EQPB Regulations Current as of January 8, 2013

2401-31-36 Severability

If any provision of these regulations or the application of any provision of these regulations to any person or circumstance is held invalid, the application of such provision to other persons or circumstances and the remainder of these regulations shall not be affected thereby.

(Effective May 26, 1996)

2401-31-37 Repealer

The regulations contained herein shall replace the Republic of Palau Environmental Quality Protection Board Solid Waste Regulations currently in effect in the Republic of Palau.

(Effective May 26, 1996)

CHAPTER 2401-33 PESTICIDE REGULATIONS

GENERAL PROVISIONS

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GENERAL PROVISIONS

2401-33-01 Authority

These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board pursuant to the authority granted it by Title 24 Palau National Code. These Regulations shall have the force and effect of law.

(Effective May 26, 1996)

2401-33-02 Purpose

The purpose of these regulations is to maintain and establish a system of control over the importation,

distribution, sale, and use of pesticides by persons within the Republic of Palau.

(Effective May 26, 1996)

2401-33-03 Definitions

As used herein, unless the context otherwise requires, the term:

(A) "Active Ingredient" means:

(1) In the case of a pesticide other than a plant regulator, defoliant, or desiccant, an ingredient which will prevent, destroy, repel, or mitigate any pest;

(2) In the case of a plant regulator, an ingredient which, through physiological action, will accelerate or retard the rate of growth or rate of maturation or otherwise alter the behavior of ornamental or crop plants or the product thereof;

(3) In the case of a defoliant, an ingredient which will cause the leaves or foliage to drop from a plant;

(4) In the case of a desiccant, an ingredient which will artificially accelerate the drying of plant tissue.

(B) "Adulterated" means any pesticide if its strength or purity falls below the professed standard of quality as expressed on the labeling under which it is sold, or if any substance has been substituted wholly or in part for the pesticide, or if any valuable constituent of the pesticide has been wholly or in part abstracted.

(C) "Agricultural Commodity" means any plant, or part thereof, or animal product, produced by a person (including farmers, ranchers, plant propagators, aquaculturists, floriculturists, orchardists, foresters, or other comparable persons) primarily for sale, consumption, propagation, or other use by man or animals.

(D) "Approved State Plan" means a program for the certification of pesticide applicators which has been accepted by the EQPB and which has been approved by the EPA as meeting the requirements set forth in 40 CFR Part 171.

(E) "Banned Pesticide" means any pesticide, the use of which for any purpose is prohibited by the EQPB.

(F) "Banned Use" means any use which is prohibited by the EQPB, or any use which is suspended or cancelled by EPA.

(G) "Certified Pesticide Applicator" means any individual who is certified by the Chairman to use or supervise the use of any pesticide classified as restricted use pesticide.

(H) "Chairman of the Palau Environmental Quality Protection Board" or "Chairman" means the Chairman personally or the Chairman's authorized representative.

(I) "Commercial Applicator" means a certified applicator (whether or not he is a private applicator with respect to some uses) who uses or supervises the use of any pesticide which is classified for restricted use for any purpose or on any property other than as provided by Section 2401-33-03(GG).

(J) "Competent" means properly qualified to perform functions associated with pesticide application, the degree of capability required being directly related to the nature of the activity and the associated responsibility.

(K) "Defoliant" means any substance or mixture of substances intended for causing the leaves or foliage to drop from a plant, with or without causing abscission.

(L) "Desiccant" means any substance or mixture of substances intended for artificially accelerating the drying of plant tissue.

(M) "Environment" includes water, air, land, and all plants and man and other animals living therein, and the interrelationships which exist among them.

(N) "EPA" means the United States Environmental Protection Agency.

(O) "EPA Registration Number" means the number assigned by the EPA to each pesticide that is approved for a use by the EPA.

(P) "EQPB" or "Board" means the Republic of Palau Environmental Quality Protection Board or its duly authorized representative.

(Q) "Fungus" means all non-chlorophyll-bearing thallophytes including rusts, smuts, mildews, bacteria, molds and yeasts, except those on or living in man or other animals and those on or in processed foods, beverages, or pharmaceuticals.

(R) "General Use Pesticide" means a pesticide other than one designated as a restricted use pesticide.

(S) "Hazard" means a situation where there exists a probability that a given pesticide will cause injury or have an adverse effect on the environment.

(T) "Importation" means causing to be brought into the Republic of Palau.

(U) "Inert Ingredient" means an ingredient which is not an active ingredient.

(V) "Ingredient Statement" means the name and percentage of each active ingredient, and the total percentage of all inert ingredients in the pesticide.

(W) "Insect" means invertebrate animals belonging to the class Insecta or other allied classes of arthropods, such as Arachnida and Chilopoda.

(X) "Label" means the written, printed, or graphic matter on, or attached to, the pesticide or device or any of its containers or wrappers.

(Y) "Labeling" means all labels and all other written, printed, or graphic matter accompanying the pesticide, or to which reference is made on the label or in literature accompanying the pesticide.

(Z) "Licensed Dealer" means any person who is licensed by the Chairman to sell or distribute restricted use pesticides.

(AA) "Misbranded" means any pesticide if:

(1) Its labeling bears any statement, design, or graphic representation relative thereto or to its ingredients which is false or misleading in any particular;

(2) Its labeling bears instructions for a banned use;

(3) It is contained in a package or other container or wrapping which does not conform to standards established by the EQPB or EPA;

(4) It is an imitation of, or is offered for sale under the name of, another pesticide;

(5) Its label does not bear the EPA registration number;

(6) The labeling accompanying it does not contain, in English and in any other language required by the EQPB, instructions for use which are necessary, proper, and adequate for the protection of the public;

(7) The label does not contain warning or caution statements in English, which if complied with are adequate to protect health and the environment;

(8) The label does not bear an ingredient statement on the immediate container, or on the outside container or wrapper if such outside container or wrapper does not allow the ingredient statement on the immediate container to be clearly read; or,

(9) Any additional label which may be required by the Chairman is not conspicuously displayed on each container.

(BB) "Nematode" means unsegmented roundworms of the class Nematoda which inhabit soil, water, plants, or plant parts.

(CC) "Person" means the Republic of Palau, a state, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm or company organized or existing under the laws of the Republic or of any state or country, a lessee or other occupant or property, or an individual singly or as a group.

(DD) "Pest" means any insect, rodent, nematode, fungus, weed, or any other form of terrestrial or aquatic plant or animal life, or virus, bacteria, or other microorganism which the Chairman determines to be a pest.

(EE) "Pesticide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

(FF) "Plant regulator" means any substance or mixture of substances intended, through physiological action, for accelerating or retarding the rate of growth or rate of maturation, or for otherwise altering the behavior of plants or the product thereof, but shall not include substances to the extent that they are intended as plant nutrients, trace elements, nutritional chemicals, plant inoculants, and soil amendments. Also, the term 'plant regulator' shall not be required to include any of such of those nutrient mixtures or soil amendments as are commonly known as vitamin-hormone horticultural products, intended for improvement, maintenance, survival, health, and propagation of plants, and as are not for pest destruction and are non-toxic, non-poisonous in the undiluted packaged concentration.

(GG) "Private applicator" means a certified applicator who uses or supervises the use of any pesticide which is classified for restricted use for purposes of producing any agricultural commodity on property owned or rented by him or (if applied without compensation other than trading of personal services

between producers of agricultural commodities) on the property of another person.

(HH) "Restricted Use Pesticide" means a pesticide, one or more uses of which have been restricted by the EQPB under these regulations, by regulation under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, or which bears on its label the phrase 'restricted use pesticide'.

(II) "Rodent" means mammals of the order Rodentia, such as rats and mice.

(JJ) "Sell or Distribute" means to distribute, sell, solicit, offer for sale, hold for sale, ship, or deliver for shipment in intrastate commerce, between states, or within the Republic.

(KK) "Virus" means any of a group of microscopic infective agents which cause diseases in plants and animals.

(LL) "Weed" means any plant growing where it is not wanted.

(Effective May 26, 1996)

ADMINISTRATION OF THE EQPB REGULATIONS

2401-33-04 Authority to Take Action

The Chairman is authorized to take such action as may be necessary in the administration and enforcement of these regulations.

(Effective May 26, 1996)

UNLAWFUL ACTS

2401-33-05 General Prohibitions

(A) Except as otherwise exempted in Section 2401-33-06, it shall be unlawful for any person within the Republic to import, sell or distribute, or receive and (having so received) deliver or offer to deliver, to any person:

(1) Any pesticide which is adulterated or misbranded; or,

(2) Any banned pesticide;

(B) It shall be unlawful for any person:

(1) To detach, alter, deface, or destroy, in whole or in part, any labeling, unless such action is taken with the approval of the Chairman to correct an improper label or labeling;

(2) To refuse to keep any records required pursuant to Sections 2401-33-19 through 2401-33-21, inclusive, or to refuse to allow the inspection of any records or establishment pursuant to Sections 2401-33-22 or 2401-33-30, or to refuse to allow the Chairman or the Chairman's representative to observe pesticide use, investigate pesticide misuse, or take a sample of any pesticide pursuant to Section 2401-33-30;

(3) To use any pesticide in a manner inconsistent with its labeling, unless using the pesticide under the provisions of an experimental use permit;

(4) To use any pesticide under an experimental use permit in a manner contrary to the provisions of such permit;

(5) To violate any order issued under Section 2401-33-32;

(6) To violate any ban or prohibition issued under Section 2401-33-28;

(7) To violate any revocation of registration of a pesticide to meet a special local need under Section 2401-33-29;

(8) To knowingly falsify all or part of any application for certification, license, or experimental use permit, or any records required to be maintained pursuant to Sections 2401-33-19 through 2401-33-21, inclusive;

(9) To sell or distribute restricted use pesticides unless licensed under Section 2401-33-17;

(10) To sell or distribute any restricted use pesticide to any person other than a licensed dealer or a certified applicator;

(11) To use, store, transport, mix, or discard any pesticide or the containers of such pesticide in such a way as to pose a hazard to human health or the environment;

(12) To use or apply restricted use pesticides unless certified under Sections 2401-33-07 through 2401-33-16, inclusive or unless acting under the supervision of a certified applicator;

(13) To use for one's own advantage or to reveal any information relative to formulas of products acquired in the administration of these regulations to persons other than proper officers or employees of the Republic of Palau National, or relevant state, Government, or to courts in response to subpoena, or to physicians, or, in emergencies, to pharmacists or other qualified persons for use in the preparation of antidotes.

*(14) To use, store or apply any pesticide in a manner that is inconsistent with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

(Effective May 26, 1996)

**(Amendment Effective March 12, 1999)*

2401-33-06 Exemptions

The penalties provided for a violation of Section 2401-33-05(A) shall not apply to:

(A) Any carrier while lawfully shipping, transporting, or delivering for shipment any pesticide, if such carrier upon request of any person duly designated by the Chairman shall permit such person to copy all of its records concerning such pesticide;

(B) Any public official while engaged in the performance of official duties;

(C) Any person importing a pesticide for use under an experimental use permit, provided that the requirements of Section 2401-33-37 and any additional requirements specified in the experimental use permit are met prior to any use of such pesticide;

(D) Any person possessing, receiving, shipping or delivering to another person any pesticide while acting under the written instructions of or with the express written approval of the Chairman.

(Effective May 26, 1996)

CERTIFICATION OF APPLICATORS

2401-33-07 Classes of Applicators

(A) A certified applicator shall be classified as either a commercial applicator or a private applicator.

(B) Commercial Applicator. Any person who uses or supervises the use of restricted use pesticides for the production of agricultural commodities unless such use is in accordance with that specified in Section 2401-33-07(C) shall be classified as a commercial applicator in the Agricultural Pest Control category which includes commercial applicators using or supervising the use of restricted use pesticides in the production of agricultural crops, including vegetables, small fruits, tree fruits and nuts, as well as on grass lands and non-crop agricultural lands.

(C) Private Applicator. Any person who uses or supervises the use of restricted use pesticides for the purpose of producing any agricultural commodity on property owned or rented by him or (if applied without compensation other than trading of personal services between producers of agricultural commodities) on the property of another person shall be classified as a private applicator.

(Effective May 26, 1996)

2401-33-08 General Standards for Certification of Commercial Applicators

Competence in the use and handling of pesticides shall be determined by written examination and, as appropriate, by demonstration, based upon standards which meet or exceed those set forth below.

(A) Label and Labeling Comprehension. Factors including:

- (1) The general format and terminology of pesticide labels and labeling;
- (2) The understanding of instructions, warnings, terms, symbols, and other information commonly appearing on pesticide labels;
- (3) Classification of the product, general or restricted;
- (4) Necessity for use consistent with the label.

(B) Safety. Factors including:

- (1) Pesticide toxicity and hazard to man and common exposure routes;
- (2) Common types and causes of pesticide accidents;
- (3) Precautions necessary to guard against injury to applicators and other individuals in or near treated areas;
- (4) Need for and use of protective clothing and equipment;
- (5) Symptoms of pesticide poisoning;

(6) First aid and other procedures to be followed in case of a pesticide accident;

(7) Proper identification, storage, transport, handling, mixing procedures, and disposal methods for pesticides and used pesticide containers, including precautions to be taken to prevent children from having access to pesticides and pesticide containers.

(C) Environment. The potential environmental consequences of the use and misuse of pesticides as may be influenced by factors including:

- (1) Weather and other climatic conditions;
- (2) Types of terrain, soil, or other substrate;
- (3) Presence of fish, wildlife, and other non-target organisms;
- (4) Drainage patterns.

(D) Pests. Factors including:

- (1) Common features of pest organisms and characteristics of damage needed for pest recognition;
- (2) Recognition of relevant pests;
- (3) Pest development and biology as it may be relevant to problem identification and control.

(E) Pesticides. Factors including:

- (1) Types of pesticides;
- (2) Types of formulations;
- (3) Compatibility, synergism, persistence, and animal and plant toxicity of the formulations;
- (4) Hazards and residues associated with use;
- (5) Factors which influence effectiveness or lead to such problems as resistance to pesticides;
- (6) Dilution procedures.

(F) Equipment. Factors including:

- (1) Types of equipment and advantages and limitations of each type;
- (2) Uses, maintenance and calibration.

(G) Application Techniques. Factors including:

- (1) Methods used to apply various formulations of pesticides, together with a knowledge of which technique or application to use in a given situation;
- (2) Relationship of discharge and placement of pesticides to proper use, unnecessary use, and misuse;
- (3) Prevention of drift and pesticide loss into the environment.

(H) Laws and Regulations. Applicable Republic of Palau laws and regulations.

(Effective May 26, 1996)

2401-33-09 Specific Standards of Competency for Commercial Applicators

Commercial applicators shall be particularly qualified with respect to the practical knowledge standard for Agricultural Pest Control relative to plants. Applicators must demonstrate practical knowledge of crops grown and the specific pests of those crops on which they may be using restricted use pesticides. Practical knowledge is required concerning soil and water problems, pre-harvest intervals, re-entry intervals, phytotoxicity, and potential for environmental

contamination, non-target injury, and community problems resulting from the use of restricted use pesticides in agricultural areas.

(Effective May 26, 1996)

2401-33-10 Exclusion

The standards set forth in Sections 2401-33-07 and 2401-33-08 do not apply to persons conducting laboratory research involving restricted use pesticides.

(Effective May 26, 1996)

2401-33-11 Standards for Certification of Private Applicators

As a minimum requirement for certification, a private applicator must show that he or she possesses a practical knowledge of the pest problems and pest control practices associated with his or her agricultural operations, proper storage, use, handling, and disposal of the pesticides and containers, and related legal responsibility. This practical knowledge includes ability to:

- (A) Recognize common pests to be controlled and damage caused by them;
- (B) Read and understand the label and labeling information, including the common name of pesticides applied, pest(s) to be controlled, timing and methods of application, safety precautions, any pre-harvest or re-entry restrictions, and any specific disposal procedures;
- (C) Apply pesticide in accordance with label instructions and warnings, including the ability to prepare the proper concentration of pesticide to be used under particular circumstances taking into account such factors as area to be covered and the quantity dispersed in a given period of operation;
- (D) Recognize local environmental situations that must be considered during application to avoid contamination;
- (E) Recognize poisoning symptoms and procedures to follow in case of a pesticide accident.

(Effective May 26, 1996)

2401-33-12 Determination of Competency

- (A) Commercial Applicators. Application for certification as a commercial applicator shall be made to the Chairman on a form provided for that purpose. As a minimum qualification for certification, the applicant must pass a written examination at a time and place designated by the Chairman. The examination will be based on standards contained in Sections 24-01-33-08 and 2401-33-09.
- (B) Private Applicators. Application for certification as a private applicator shall be made to the Chairman on a form provided for that purpose. The applicant may

qualify for certification by passing a written examination or by satisfactorily demonstrating the ability to use pesticides and application equipment correctly and by passing an oral examination. Such examinations and demonstration requirements shall be based on standards contained in Section 2401-33-11.

(Effective May 26, 1996)

2401-33-13 Duration of Certification and Renewals

All certificates shall be valid for a period of three (3) years from the date of issuance unless earlier suspended or revoked by the Chairman. Application for renewal shall be made to the Chairman on a form provided for that purpose. The applicant shall be required to pass another examination and/or give a demonstration of proficiency in order to ensure that certified applicators continue to meet the requirements of changing technology and to assure a continuing level of competency and ability to use pesticides safely and properly.

(Effective May 26, 1996)

2401-33-14 Standards for Supervision of Non-Certified Applicators by Certified Private and Commercial Applicators

- (A) Restricted use pesticides may be applied by a non-certified but competent person acting under the direct supervision of a certified applicator.
- (B) The availability of the certified applicator must be directly related to the hazard of the situation.
- (C) In situations where the certified applicator is not required to be physically present, 'direct supervision' shall include verifiable instruction to the competent person including, but not limited to, detailed guidance for applying the pesticide properly and provisions for contacting the certified applicator in the event he is needed.
- (D) In other situations, and as required by the label, the actual physical presence of a certified applicator may be required when application is made by a non-certified applicator.
- (E) Regardless of whether the certified applicator is physically present, responsibility for proper application shall remain with the certified applicator.

(Effective May 26, 1996)

2401-33-15 Temporary Certification

The Chairman may issue a temporary certificate valid for a period not to exceed ninety (90) days to a person who holds a valid pesticide applicator's certificate issued in a state or territory of the United States having an approved state plan. Written application for temporary certification shall be made to

the Chairman in writing. Temporary certification shall be limited to the same type and category of pesticide use for which the applicant is certified in the other state or territory. Except under such special circumstances as the Chairman may recognize, a temporary pesticide applicator certificate shall be non-renewable.

(Effective May 26, 1996)

2401-33-16 Denial, Suspension or Revocation, and Appeal

- (A) The Chairman may deny certification to:
- (1) Any person who is not a resident of the Republic;
 - (2) Any person whose certificate is suspended or revoked;
 - (3) Any person who has been found to be in violation of any part of these regulations.
- (B) Any certificate issued pursuant to this part may be suspended or revoked by the Chairman for violation of any condition of the certificate or of these regulations, or upon assessment of civil or criminal penalty against the holder of the certificate under Palau National Code Title 24.
- (C) Any person who has been denied certification pursuant to Section 2401-33-16(A) or whose certificate has been suspended or revoked may appeal to the EQPB to set aside such denial, suspension, or revocation.

(Effective May 26, 1996)

LICENSING OF RESTRICTED USE PESTICIDE DEALERS

2401-33-17 License Required

Every person engaged in the sale or distribution of restricted use pesticides and every person importing restricted use pesticides who is not a certified applicator shall obtain a license from the EQPB. Application for a license shall be made to the Chairman on a form provided for that purpose and shall be accompanied by a fee of \$15.00, which is non-refundable, except that no fee is required of the National Government of the Republic of Palau. Each license shall expire one (1) year from the date of issue.

(Effective May 26, 1996)

2401-33-18 Suspension, Revocation, Rejection

A dealer's license may be suspended or revoked by the Chairman for any violation of these regulations whether committed by the dealer or an employee thereof. Any such violation during the three (3) years preceding the date of application for a license may serve as grounds for rejection of same.

(Effective May 26, 1996)

RECORDS

2401-33-19 Records to be kept by Commercial Applicators

Each certified commercial applicator shall keep and maintain for a period of not less than two (2) years true and accurate records of the use and application of restricted use pesticides, including the following information:

- (A) At the time of purchase or receipt of a restricted use pesticide, a record of:
- (1) The brand name, quantity, and EPA registration number of the product;
 - (2) The name and address of the person from whom purchased or received;
 - (3) The date of purchase or receipt.
- (B) At the time of application of a restricted use pesticide, a record of:
- (1) The brand name and EPA registration number of the product, and the date of purchase or receipt;
 - (2) The amount of product used and, if the product is to be mixed with another substance prior to use, the name of the other substance and the total amount of mixture prepared;
 - (3) The site of use and purpose of use;
 - (4) The date and time of application;
 - (5) The signature of the certified applicator and, if the pesticide is used by a person acting under the supervision of the certified applicator, the name of the user.
- (C) At the time of disposal of a restricted use pesticide product, container, or mixture, a record of:
- (1) The brand name and EPA registration number of the product, and the date of purchase or receipt;
 - (2) The amount of product or mixture disposed, or the number and type of containers disposed, and, if a mixture, the concentration of active ingredients(s);
 - (3) The date, site, and method of disposal.

(Effective May 26, 1996)

2401-33-20 Records to be Kept by Licensed Dealers

Each licensed dealer shall keep and maintain for a period of not less than two (2) years true and accurate records of the receipt and sale or distribution of restricted use pesticides, including the following information:

- (A) Upon receipt of a restricted use pesticide, a record of:
- (1) The brand name, EPA registration number, and number of containers;
 - (2) The net weight of each container, and the type of container construction, e.g., glass, metal, paper carton, paper bag, hard plastic, etc;
 - (3) The name and address of the person from whom purchased or received;
 - (4) The date of receipt.

(B) Upon sale or distribution of a restricted use pesticide, a record of:

- (1) The name, address, and certification number or dealer's license number of the person purchasing or receiving the pesticide;
- (2) The date of sale or distribution;
- (3) The brand name, EPA registration number, and quantity of product sold or distributed;
- (4) The signature of the person selling or distributing the pesticide.

(Effective May 26, 1996)

2401-33-21 Additional Records

Additional records, as found to be necessary for the enforcement of these regulations, may be prescribed by the Chairman with the approval of the EQPB.

(Effective May 26, 1996)

2401-33-22 Access to Records

The Chairman shall have access to such records at any reasonable time to examine, copy, or make copies of such records for the purpose of carrying out the provisions of these regulations. Unless required for the enforcement of the regulations, such information shall be confidential and, if summarized, shall not identify an individual person.

(Effective May 26, 1996)

IMPORTATION

2401-33-23 Notice of Intent

Persons desiring to import a pesticide into the Republic shall submit a Notice of Intent to the Chairman on a form provided for that purpose prior to arrival of the pesticide shipment. The Chairman shall then issue any instructions relative to the disposition of the shipment. Such instructions may include, but are not limited to, directions to release the shipment to the consignee, detain the shipment for sampling, deny delivery to the consignee, or impound the shipment.

(Effective May 26, 1996)

2401-33-24 Inspection

Upon arrival of the shipment, the Chairman's representative shall inspect the pesticide and shall compare the results of the inspection and the entry papers for the shipment with the information provided by the importer on the Notice of Intent. If no discrepancies are noted and the Chairman has not instructed to the contrary, the shipment shall be released. However, any discrepancies shall be reported to the Chairman, and the shipment may be detained until such discrepancies are resolved.

(Effective May 26, 1996)

2401-33-25 Shipments Arriving Without Notice

When a shipment of pesticide arrives in the Republic and the Chairman has not issued instructions for disposition, the shipment shall be detained and the Chairman shall be notified. The Chairman shall then determine whether a Notice of Intent to import pesticides has been submitted and shall provide instructions for disposition of the shipment.

(Effective May 26, 1996)

2401-33-26 Detained, Denied, and Impounded Shipments

(A) All expenses arising from detainment of a pesticide shipment due to failure of the importer to submit a Notice of Intent to the Chairman in a timely manner shall be payable by the importer. Failure of the importer to pay assessed costs may result in impoundment and/or denial of entry into Palau of the shipment and/or of any future importation made by the importer.

(B) Any pesticide shipment for which delivery is denied may be disposed of by the Chairman if not exported by the consignee within ninety (90) days of denial of delivery. All expenses for storage, cartage, labor, and shipping shall be payable by the consignee and any default of such payment shall constitute a lien against any further importation made by the importer.

(C) If the owner of an impounded pesticide shipment does not satisfy any and all liens against such shipment within ninety (90) days after notification in writing of the amount of said liens, the Chairman may instruct the Attorney General to enter into such action as may be necessary to effect transfer of ownership of the shipment to the Chairman for satisfaction of said liens.

(Effective May 26, 1996)

RESTRICTING AND BANNING OF PESTICIDES

2401-33-27 Restricting of Pesticides

The EQPB may restrict any use of any pesticide to application by a certified applicator or a person acting under the supervision of a certified applicator when misuse by non-certified applicators has produced or is deemed likely to produce substantial adverse effects on human health or the environment. Any pesticide having had one or more uses restricted by the EQPB shall be a 'restricted use pesticide' for the purposes of these regulations and must be labeled as such.

(Effective May 26, 1996)

2401-33-28 Banning of Pesticides

The EQPB may prohibit the importation, sale, distribution, and use of any pesticide or prohibit a specific use or uses of any pesticide when such use or uses has produced or is deemed likely to produce substantial adverse effects on human health or the environment. For the purposes of these regulations, any use suspended or cancelled by the EPA shall constitute a banned use.

(Effective May 26, 1996)

**REVOCATION OF REGISTRATION OF A
PESTICIDE USED TO MEET A SPECIAL LOCAL
NEED**

**2401-33-29 Revocation of Registration of a
Pesticide Used to Meet a Special
Local Need**

(A) Registration of a pesticide to meet a special local need under Section 24(c) of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, shall be recognized by the EQPB and may be revoked by the EQPB if:

(1) The pesticide is found to produce substantial adverse effects on human health or the environment; or,

(2) The special local need for which the pesticide was registered no longer exists, or can be met by another pesticide which is more acceptable in terms of greater safety or effectiveness.

(B) Having revoked a registration, the EQPB may allow continued sale and use of existing stocks of the pesticide if to do so would not be inconsistent with the purposes of these regulations.

(Effective May 26, 1996)

ENFORCEMENT

2401-33-30 Right of Entry

For purposes of enforcing the provisions of these regulations, the Chairman is authorized:

(A) To enter, at reasonable times, any establishment or other place where pesticides are stored, held for distribution, sale or use, or used, for the purpose of:

(1) Inspecting any pesticide, pesticide container, labels and labeling, or application equipment;

(2) Collecting samples of any pesticide, suspected pesticide, or pesticide labeling;

(3) Observing operations involving the use or disposal of any pesticide, or the disposal of pesticide containers;

(4) Investigating suspected misuse of any pesticide.

(B) To enter any premises at any time if there is substantial reason to believe that any pesticide used, stored, or otherwise present on such premises is, through accident, carelessness, or other circumstance, producing adverse effects on human health or the environment, for the purpose of taking such action as may be necessary to prevent or mitigate further adverse effects.

(Effective May 26, 1996)

2401-33-31 Seizure

(A) A pesticide may be seized for condemnation by the Chairman if:

(1) It is adulterated or misbranded.

(2) In the case of a restricted use pesticide, it is found in the possession of a person other than a licensed dealer or an employee of such dealer, or a certified applicator or a person acting under the supervision of a certified applicator.

(B) No notice or hearing shall be required prior to the seizure. Proceedings for condemnation shall be held in the Trial Division of the Supreme Court of the Republic of Palau. If the pesticide is condemned it shall, after entry of the decree, be disposed of by the Chairman, and court costs and fees, the reasonable value of the legal fees of the Attorney General, storage, and other proper expenses shall be awarded against the owner of the pesticide. If the pesticide is disposed of by sale, the proceeds shall be paid into the treasury of the Republic. However, upon payment of the costs of the condemnation proceedings and the execution and delivery of a good and sufficient bond conditioned that the pesticide shall not be sold or otherwise disposed of contrary to the provisions of these regulations, the court may direct that such pesticide be delivered to the owner.

(Effective May 26, 1996)

**2401-33-32 Stop Sale, Use, and
Removal Orders**

(A) Whenever any pesticide is found by the EQPB within Palau the Chairman may issue a written or printed "stop sale, use, or removal" order to any person who owns, controls, or has custody of such pesticide wherever there is reason to believe on the basis of inspection or tests that:

(1) Such pesticide is in violation of any of the provisions of these regulations;

(2) Such pesticide has been or is intended to be distributed or sold in violation of any such provisions;

(3) The EPA registration of the pesticide has been cancelled; or,

(4) Any applicable registration of a pesticide to meet a special local need is disapproved by the EPA or revoked by the EQPB;

(B) After receipt of such "stop sale, use, or removal" order no person shall sell, use, or remove the pesticide described in the order except in accordance with the provisions of the order.

(Effective May 26, 1996)

EXPERIMENTAL USE PERMITS

**2401-33-33 Application for Experimental Use
Permit**

Persons wishing to conduct small scale laboratory or field tests of an unregistered pesticide use must obtain an experimental use permit prior to conducting such tests. The application for the experimental use permit must contain:

(A) The name, address, and qualifications of the applicant;

(B) A description of the proposed experiment, including the amount of pesticide to be used, the type of pest or organism to be experimented with, the crop or animal for which the pesticide is to be used, the location at which it is proposed to conduct the experiment, and the duration of the testing program;

(C) The brand name or designation of the pesticide, ingredient statement, name and address of the manufacturer, and amount of pesticide to be purchased or requested;

(D) Data regarding the toxicity of the product, precautions to be taken for the protection of those who may handle or be exposed to the experimental formulations, and instructions for the treatment of poisoning or injury resulting from ingestion, inhalation, or other exposure to the pesticide;

(E) If the pesticide is to be tested in any place likely to be frequented by people not directly associated with the testing, a description of the measures that will be taken to prevent exposure of such people to the pesticide;

(F) When food or feed is likely to be contaminated, either a full statement of the action which will be taken to prevent the food or feed from being consumed, except by laboratory or experimental animals, or convincing evidence that the proposed use will not result in residue which would be hazardous to man, other animals, or the environment;

(G) Data regarding the environmental hazards associated with the proposed use of the pesticide, including its biological half-life, and a description of the precautions to be taken for the protection of the environment;

(H) The EPA registration number, if any uses of the product are registered with the EPA;

(I) A statement that the pesticide will be used for experimental purposes only;

(J) A statement indicating the method of disposal of any unused experimental pesticides.

(Effective May 26, 1996)

2401-33-34 Restrictions

The Chairman may limit the quantity of pesticide to be purchased or requested for experimental use and may make such other restrictions to the permit as he may determine to be necessary for the protection of the public and the environment.

(Effective May 26, 1996)

2401-33-35 Denial of Experimental Use Permit

The Chairman may refuse to issue an experimental use permit if any information required in Section 2401-33-33 is not furnished in the application for such permit, or if the information furnished is deemed insufficient to insure that adequate precautions will be taken for the protection of the public and the environment, or if the Chairman determines that the applicant is not qualified by education and/or experience to undertake the proposed program.

(Effective May 26, 1996)

2401-33-36 Duration of Experimental Use Permits

Unless earlier revoked by the Chairman, an experimental use permit shall be effective for a specified period of time. The duration of the permit shall be determined by the nature of the proposed testing program and may be extended upon request if circumstances warrant.

(Effective May 26, 1996)

2401-33-37 Special Label Requirements

If the label of the pesticide to be tested does not bear an EPA registration number, additional labels shall be affixed as necessary so that the following information is displayed clearly and in English and Palauan on the outside of each container of experimental formulation:

(A) The prominent statement "For Experimental Use Only";

(B) A warning or caution statement which, if complied with, is adequate for the protection of those who may handle or be exposed to the experimental formulation;

(C) The name and address of the holder of the experimental use permit;

(D) The name or designation of the experimental formulation;

(E) Such other statements or information as may be required by the experimental use permit.

(Effective May 26, 1996)

2401-33-38 Reports

The holder of an experimental use permit shall report to the Chairman:

(A) Immediately, incidents of adverse effects on human health or the environment resulting from use of or exposure to a pesticide formulation covered by the permit;

(B) Within thirty (30) days after termination of experimental use, that such use has been terminated;

(C) Within thirty (30) days after disposal of unused experimental pesticide, the method and site of disposal, and the quantity of pesticide discarded.

(Effective May 26, 1996)

2401-33-39 Revocation

The Chairman may revoke an experimental use permit at any time upon finding of violation of the terms or conditions of such permits or upon finding that the terms or conditions are inadequate to prevent unreasonable risk to human health or the environment.

(Effective May 26, 1996)

PENALTY FOR VIOLATION

2401-33-40 Criminal and Civil Penalties

Any person who violates these regulations shall, for each day of each violation, be subject to:

(A) A civil penalty and/or criminal fine of not more than \$10,000; and/or

(B) Imprisonment for not more than one (1) year.

(Effective May 26, 1996)

RESTRICTED AND BANNED USE PESTICIDES

2401-33-41 Pesticide Use Classification

(A) The Chairman shall adopt a list of pesticide products and active ingredients that shall be specified as classified for restricted use. This list is appended to these regulations as Appendix A and may be periodically updated by the Chairman as deemed appropriate. Appendix A, including all future updates of the Appendix, is hereby incorporated into this section as if specifically set forth herein.

(B) The Chairman may adopt a list of pesticide products and active ingredients that shall be specified as banned pesticides. This list is appended to these regulations as Appendix B and may be periodically updated by the Chairman as deemed appropriate. Appendix B, including all future updates of the Appendix, is hereby incorporated into this section as if specifically set forth herein.

(Effective May 26, 1996)

2401-33-42 Additional Restricted Uses

Any other pesticide or pesticide formulation classified for restricted use under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, shall be a restricted use pesticide for the purposes of these regulations.

(Effective May 26, 1996)

2401-33-43 Additional Banned Pesticides

Any other pesticide or pesticide formulation whose EPA Registration has been cancelled by the EPA under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, shall be a banned pesticide for the purposes of these regulations.

(Effective May 26, 1996)

2401-33-44 List of Restricted Use Pesticides

The Chairman shall prepare a list of all pesticides or pesticide formulations classified for restricted use and a list of such pesticides or pesticide formulations classified as banned and shall amend such lists whenever necessary. Such lists shall be made available to pesticide dealers, certified pesticide applicators, and to any other person requesting such lists.

(Effective May 26, 1996)

MISCELLANEOUS

2401-33-45 Severability

If any provision of these regulations or the application of any provision of these regulations to any person or circumstance is held invalid, the application of such provision to other persons or circumstances and the remainder of this regulation shall not be affected thereby.

(Effective May 26, 1996)

2401-33-46 Repealer

The regulations contained herein shall replace the Pesticide Regulations currently in effect in the Republic of Palau.

(Effective May 26, 1996)

2401-33-47 Repealer

*All activities subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

**(Amendment Effective March 12, 1999)*

APPENDIX A
RESTRICTED USE PESTICIDES

ACTIVE INGREDIENT	FORMULATION	RESTRICTED USE
1. Acrolein	As sole active ingredient	All uses.
2. Acrylonitrile	In combination with carbon tetrachloride.	All uses.
3. Aldicarb	As sole active ingredient.	Ornamental uses(indoor and outdoor)
4. Allyl alcohol	All formulations	All uses.
5. Aluminum phosphide	As sole active ingredient.	All uses.
6. Azinophos methyl	All liquids with a concentration greater than 13.5%.	All uses.
7. Calcium cyanide	As sole active ingredient.	All uses.
8. Carbofuran	All concentrate suspensions and wettable powders 40% and greater.	All uses.
9. Chlorfenvinphos	All concentrate solutions emulsifiable concentrates 21% and greater.	All uses.
10. Clonitralid	All wettable powders 70% greater. All granulars and wettable powders.	All uses. Molluscide Uses
11. Demeton	1% fertilizer formulation; all granular formulations, emulsifiable concentrates, and concentrated solutions.	All uses.
12. Dioxathion	All concentrate solutions or emulsifiable concentrates greater than 30%. ¹ All solutions 3% and greater. ¹	All uses. Domestic Uses
13. Disulfoton	All emulsifiable concentrates 65% and greater; all emulsifiable concentrates and concentrate solutions 21% and greater with Fensulfothion 43% and greater; all emulsifiable concentrates 32% and greater in combination with 32% Fensulfothion and greater.	All uses.
14. Endrin	All emulsions, dusts, wettable powders, pastes, and granular formulations.	All uses.
15. Ethoprop	Emulsifiable concentrates 40% and greater.	All uses.
16. Ethyl parathion	All granular, dust, and fertilizer formulations, wettable powders, emulsifiable concentrates, concentrated suspensions, and concentrated solutions.	All uses.
17. Fenamiphos	Emulsifiable concentrates 35% and greater.	All uses.
18. Fensulfothion	Concentrate solutions 63% and greater; all emulsifiable concentrates and concentrate solutions 43% and greater with Disulfoton 21% and greater; all emulsifiable concentrates 32% and greater in combination with Disulfoton 32% and greater. Granular formulations 10% greater.	All uses. Indoor Uses (greenhouse)
19. Fluoroacetamide/1081	As sole active ingredient in baits.	All uses.
20. Fonofos	Emulsifiable concentrates 44% and greater.	All uses.
21. Hydrocyanic acid	As sole active ingredient.	All uses.
22. Methomyl	As sole active ingredient in 1% to 2.5% baits (except 1% flybait); all concentrated solution formulations and all 90% wettable powder formulations not in water soluble bags.	All uses.
23. Methyl bromide	All formulations in containers greater than 1.5lbs; formulations containing no indicator and packaged in quantities of 1.5lbs. or less per container.	All uses.
24. Methyl parathion	All formulations.	All uses.
25. Mevinphos	All emulsifiable concentrates and liquid concentrates; psycod filter fly liquid formulations and 2% dusts.	All uses.
26. Monocrotophos	Liquid formulations 19% and greater.	All uses.
27. Paraquat (dichloride) and Paraquat bis (methyl sulfate)	All formulations and concentrations except those listed below: Pressurized spray formulations containing 0.44% Paraquat bis (methyl sulfate) and 15% petroleum distillates as active ingredients. Liquid fertilizers containing concentrations of 0.025% Paraquat dichloride	All uses. All uses restricted except spot weed and grass control. No uses restricted.

	and 0.03% atrazine, 0.03% Paraquat dichloride and 0.37% atrazine, or 0.04% Paraquat dichloride and 0.49% atrazine.	
28. Phorate	Liquid formulations 65% and greater.	All uses.
29. Phosacetim	Baits 0.1% and greater.	All uses.
30. Phosphamidon	Liquid formulations 75% and greater; dust formulations 1.5% and greater.	All uses.
31. Picloram	All formulations and concentrations except Tordon 101R. Tordon 101R forestry herbicide containing 5.4% Picloram and 20.9% 2,4-D.	All uses. All uses restricted except control of unwanted trees by cut surface treatment.
32. Sodium cyanide	All capsules and ball formulations.	All uses.
33. Sodium fluoroacetate	All solutions and dry baits.	All uses.
34. Strychnine	All dry baits, pellets, and powder formulations greater than 0.5%. All dry baits, pellets, and powder formulations. All dry bits, pellets, and powder formulations 0.5% and below.	All uses. All uses calling for burrow builders. All uses except subsoil.
35. Sulfotepp	Sprays and smoke generators.	All uses.
36. Tepp	Emulsifiable concentrate formulations	All uses.

¹ Percentages given are the total of Dioxathion plus related compounds.
(Effective May 26, 1996)

APPENDIX B
BANNED USE PESTICIDES

ACTIVE INGREDIENT	FORMULATION	RESTRICTED USE
No Pesticides Currently Banned		

CHAPTER 2401-51 PUBLIC WATER SUPPLY SYSTEM REGULATIONS

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GENERAL PROVISIONS

2401-51-01 Authority

These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board pursuant to the authority granted it by Republic of Palau Public Law 1-58. These regulations shall have the force and effect of law.

(Effective May 26, 1996)

2401-51-02 Purpose

The purpose of these regulations, technical provisions and specifications is to establish certain minimum standards and requirements as determined by the Republic of Palau Environmental Quality Protection Board to be necessary for the public health and safety to insure that public water supply systems are protected against contamination and do not constitute a health hazard.

(Effective May 26, 1996)

2401-51-03 Definitions

As used herein, unless the content otherwise requires, the term:

(A) "Best available technology" or "BAT" means the best technology, treatment techniques, or other means which the Board finds, after examination for effectiveness under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

(B) "Board" means the Republic of Palau Environmental Quality Protection Board or its authorized representative.

(C) "Certified Laboratory" means a laboratory approved by the Board in the case of a laboratory located in the Republic of Palau, or by the EPA if

located outside Palau, except that measurements for turbidity, free chlorine residual, temperature and pH may be performed by any person acceptable to the Board.

(D) "Chairman of the Palau Environmental Quality Protection Board", or "Chairman" means the Chairman personally or his duly authorized representative.

(E) "Coagulation" means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

(F) "Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

(G) "Contaminant" means any physical, chemical, biological or radiological substance or matter in water.

(H) "Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

(I) "CT" or "CTcalc" is the product of "residual disinfectant concentration" (C) in mg/l determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes, i.e., "C" x "T". If a public water system applies disinfectants at more than one point prior to the first customer, it must determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation or "total inactivation ratio." In determining the total inactivation ratio, the public water system must determine the residual disinfectant concentration of each disinfection sequence and corresponding contact time before any subsequent disinfection application point(s). "CT_{99.9}" is the CT value required for 99.9 percent (3-log) inactivation of *Giardia lamblia* cysts. The inactivation ratio is:

$$\frac{CT_{calc}}{CT_{99.9}}$$

and the sum of the inactivation ratios, or total inactivation ratio shown as:

$$\frac{(CT_{calc})}{(CT_{99.9})}$$

is calculated by adding together the inactivation ratio for each disinfection sequence. A total inactivation ratio equal to or greater than 1.0 is assumed to provide a 3-log inactivation of *Giardia lamblia* cysts.

(J) "Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which:

- (1) A precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and
- (2) While the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

(K) "Direct filtration" means a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

(L) "Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

(M) "Disinfectant contact time" ("T" in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured. Where only one "C" is measured, "T" is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where residual disinfectant concentration ("C") is measured. Where more than "C" is measured, "T" is:

- (1) For the first measurement of "C", the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first "C" is measured; and,
- (2) For subsequent measurements of "C", the time in minutes that it takes for water to move from the previous "C" measurement point to the "C" measurement point for which the particular "T" is being calculated.

Disinfectant contact time in pipelines must be calculated based on "plug flow" by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.

(N) "Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

(O) "Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

(P) "Dose Equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

(Q) "EPA" means the United States Environmental Protection Agency.

(R) "Federal Act" means 42 USC Section 300f et seq., commonly referred to as the Safe Drinking Water Act (Public Law 93- 523) and its implementing regulations.

(S) "Filtration" means a process for removing particulate matter from water by passage through porous media.

(T) "Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

(U) "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

(V) "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

(W) "Groundwater" means any source of water that is exposed only to an enclosed atmosphere before entry into a treatment, storage or distribution system.

(X) "Groundwater under the direct influence of surface water" means any water beneath the surface of the ground with:

(1) Significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*, or

(2) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

Direct influence must be determined for individual sources in accordance with criteria established by the Board. The Board determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation.

(Y) "Halogen" means one of the chemical elements chlorine, bromine or iodine.

(Z) "Lead free" means solders and flux containing not more than 0.2 percent lead, and pipes and pipe fittings containing not more than 8.0 percent lead.

(AA) "Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

(BB) "Man-made beta particle and photon emitters" means all radionuclides emitting beta particle and/or photons listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, U.S. National Bureau of Standards Handbook 69, except the daughter products of thorium-232, uranium-235, and uranium-238.

(CC) "Maximum Contaminant Level" or "MCL" means the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system, except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user and, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.

(DD) "Near the first service connection" means at one of the 20 percent of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

(EE) "Maximum Total Trihalomethane Potential" or "MTP" means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after 7 days at a temperature of 25 degrees Centigrade or above.

(FF) "Performance Evaluation Sample" means a water reference sample sent to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within the acceptable limits of performance.

(GG) "Person" means the national government of the Republic of Palau, a Palau state government, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm, or company organized or existing under the laws of the Republic or one or more of its state governments; a lessee or other occupant of property; or an individual, acting singly or as a group.

(HH) "Picocurie" or "pCi" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

(II) "Point of disinfectant application" is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff.

(JJ) "Point-of-entry treatment device" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

(KK) "Point-of-use treatment device" is a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

(LL) "Potable water" means water which is of a quality that meets the requirements of these regulations and is intended for human consumption.

(MM) "Public Water Supply System" means a system for the provision to the public of piped water for human consumption, if such system has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year. Such term includes (1) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and (2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a community water system" or a non-community water system."

(1) "Community Water System" means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

(2) "Non-Community Water System" means a public water system that is not a community water system.

(3) "Non-Transient Non-Community Water System" means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.

(NN) "Rem" means the unit dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem (mrem)" is 1/1000 of a rem.

(OO) "Residual disinfectant concentration" ("C" in CT calculations) means the concentration of disinfectant measured in mg/l in a representative sample of water.

(PP) "Sanitary Survey" means an on-site review of the water source, facilities, equipment, operation and maintenance of a public water supply system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation, and maintenance for producing and distributing safe drinking water.

(QQ) "Sedimentation" means a process for removal of solids before filtration by gravity or separation.

(RR) "Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/h) resulting in substantial particulate removal by physical and biological mechanisms.

(SS) "Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

(TT) "Supplier of water" means any person who owns or operates a public water supply system.

(UU) "Surface water" means any source of water that is open to the atmosphere and subject to runoff. This includes springs, except where the Board determines that there is adequate protection from infiltration of surface contaminants.

(VV) "System with a single service connection" means a system which supplies drinking water to consumers via a single service line.

(WW) "Tamper" means to introduce a contaminant into a public water system with the intention of harming persons, or to otherwise interfere with the operation of a public water system with the intention of harming persons.

(XX) "Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

(YY) "Total Trihalomethanes" or "TTHM" means the sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane chloroform], dibromochloromethane, bromodichloromethane and tribromomethane [bromoform]), rounded to two significant figures.

(ZZ) "Trihalomethane" or "THM" means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(AAA) "Virus" means a virus of fecal origin which is infectious to humans by water-borne transmission.

(BBB) "Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the appropriate Republic of Palau National or appropriate state agency.

(CCC) The following words and terms defined in the July 1, 1993 edition of 40 CFR Section 141.2 have the meanings ascribed to them in that Section:

- (1) Action level
- (2) Compliance cycle
- (3) Compliance period
- (4) Corrosion inhibitor
- (5) Effective corrosion inhibitor residual
- (6) First draw sample
- (7) Initial compliance period: 1993-1995
- (8) Initial compliance period 150: 1993-1995
- (9) Initial compliance period <150: 1996-1998
- (10) Large water system
- (11) Lead service line
- (12) Maximum contaminant level
- (13) Medium-size water system
- (14) Optimal corrosion control treatment
- (15) Repeat compliance period
- (16) Service line sample
- (17) Single family structure
- (18) Small water system

(Effective May 26, 1996)

SITING AND DESIGN REVIEW

2401-51-04 Siting Requirements

(A) No person may enter into a financial commitment for or initiate construction of a new water supply system or significantly increase the capacity of or modification to an existing public water supply system, until he has submitted to the Board a notification of intent which shall include a conceptual, descriptive plan with appropriate sketches detailing proposed location, water source/capacity, budget estimates and other data as described in Section 2401-51-06 and the Board has given its approval.

(B) To the extent practicable, the location for part or all of a new or expanded public water supply system should be avoided at a site which:

- (1) Is subject to a significant risk from earthquakes, floods, fires or other disasters which could cause a breakdown of the public water supply system or a portion thereof;
- (2) Except for intake structures, is within the floodplain of a 100-year flood or is lower than any recorded high tide where appropriate records exist;
- (3) In case of a roof catchment, has not been given reasonable consideration as to effective typhoon-protection measures of buildings, roofs, guttering and other catchment appurtenances.

(Effective May 26, 1996)

2401-51-05 Design and Construction Review Requirements

(A) No person shall cause or allow the construction of, or change to, any public water supply without approval of final drawings and specifications by the Board or its Executive Officer.

(B) Final drawings and specifications shall be reviewed on the basis of the judged ability of the completed facility to produce water of a quality which meets the standards prescribed by these regulations.
(C) Public water supply installation, change, or addition shall not include routine maintenance, review of pipe connection hydrants and valves or replacement of equipment pipes, and appurtenances with equivalent equipment, piping and appurtenances.
(D) All work performed on a public water supply shall be in accordance with accepted engineering practices, such as the American Water Works Association and the Committee of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers.

(Effective May 26, 1996)

2401-51-06 Notification of Intent

No person may enter into a financial commitment for or initiate construction of a new water supply system or significantly increase the capacity of or modification to an existing public water supply system, until he has submitted to the Board the following information, and the Board has given its approval:

- (A) Name and address of person who intends to construct or modify a public water supply system;
- (B) Name and address of person who will be the supplier of water to the public;
- (C) Location of proposed water source(s), on an 8 1/2" 11" portion of topographic map;
- (D) Type of source (spring, stream, well, roof catchment, ground catchment, other);
 - (1) If catchment, horizontal area in square feet;
 - (a) if roof catchment, type of roof materials;
 - (b) if ground catchment, description of vegetative cover;
 - (2) If well(s);
 - (a) estimated depth(s);
 - (b) measures to be taken to exclude surface water from well(s);
 - (c) kind of pump(s) to be used (hand, electric, windmill, etc.);
 - (3) If surface water;
 - (a) type of surface water;
 - (b) measures intended to be taken to preserve the water source (e.g. watershed protection plan).
- (E) Estimated capacity of sources in gallons per day during normal rainfall conditions;
- (F) Existing methods of sewage disposal and methods expected in the future, for the system and service area;
- (G) Planned raw water storage capacity, or increase thereof;
- (H) Description of proposed water treatment process;
- (I) Number of persons to be supplied at initiation of operation;
- (J) Anticipated population of service area ten (10) years from now;
- (K) Budget estimate for construction, operation and maintenance;

- (L) Expected source(s) of funds; and
- (M) Other data as may be required by the Board.

(Effective May 26, 1996)

2401-51-07 Approval

The Board or its Executive Officer shall review a notice of intent to construct or modify a public water supply system for completeness within 30 calendar days from receipt and either:

- (A) Fully or conditionally approve the notice for preparation of final plans and specifications for the proposed facility; or;
- (B) Notify the proposed constructor that additional information is needed; or,
- (C) Deny the proposal stating, in writing, appropriate environmental reasons for the denial.

(Effective May 26, 1996)

2401-51-08 Final Drawings and Specifications

(A) No person shall cause or allow the construction of or change in any public water supply system without approval of final drawings and specifications by the Board.

(B) The final drawings and specifications shall follow the intent expressed in the approved Notification of Intent.

(C) Preparation of final drawings and specifications shall be supervised by a person experienced in the construction and operation and maintenance of water supply systems, based on accepted engineering practices, such as the American Water Works Association and the Committee of the Great Lakes-Upper Mississippi River Board of State Public Health and Environment Managers, and directed toward construction of a facility which will produce potable water.

(D) Upon review of final drawings and specifications, the Board may:

- (1) Approve the drawings and specifications;
- (2) Request changes in the drawing and specifications of the construction; or
- (3) Deny approval.

(Effective May 26, 1996)

PERMITS

2401-51-09 Permit Required

Any person who engages in construction of or change to any public water supply system within the Republic of Palau shall first obtain from the Board or its Executive Officer a permit for the proposed activity.

The construction of or change to any public water supply system subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National,

*State or traditional conservation area, preserve or other protected area as established by law.**

(Effective May 26, 1996)

**(Amendment Effective March 12, 1999)*

2401-51-10 Application for Permit

(A) Application for a permit shall be on a form approved by the Board and shall be submitted by the person undertaking the construction of or change to any public water supply system.

(B) Applications shall be accompanied by the plan, specifications, and other information as described in Sections 2401-51-04 through 2401-51-08.

(C) Applications shall be accompanied by a processing fee of \$100.00, which is not refundable, except that no fee is required for the Government of the Republic of Palau or its State Governments.

(Effective May 26, 1996)

DRINKING WATER QUALITY STANDARDS

2401-51-11 General Provisions

(A) It is the responsibility of the supplier of water to assure a quality of water supply that equals or exceeds the standards of the these Public Water Supply Systems Regulations. This includes assurance by the supplier that users do not contaminate the public water supply system by the use of improper cross-connections or backflow of wastewater or non-potable water sources.

(B) Maximum contaminant level testing shall be done in accordance with approved method(s) in the latest edition of Standard Methods for the Examination of Water and Wastewater, by the American Public Health Association. Said analyses of drinking water contaminants shall be performed by a certified laboratory. The Board Laboratory shall perform any and all maximum contaminant level testing for which it is certified unless and until Board delegates such testing responsibilities to another certified laboratory facility.

(C) All public water supply systems in the Republic of Palau must be disinfected, meeting the disinfection specifications of the Board.

(D) Water Supply Systems Regulations, including MCL's and monitoring frequencies may be amended at any time.

(E) The Board has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by the agency and its representatives.

(Effective May 26, 1996)

2401-51-12 Maximum Contaminant Levels for Microbiological Contaminants

(A) The maximum contaminant levels (MCL) for total coliform bacteria, applicable to community and non-community water systems is based on the presence or absence of total coliforms in a sample, rather than on coliform density.

(1) For a system which collects fewer than 40 samples per month, if no more than one sample collected during a month is total coliform-positive, the system is in compliance with the MCL for total coliforms.

(2) For a system which collects at least 40 samples per month, if no more than 5.0 percent of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms.

(B) Any fecal coliform-positive repeat sample or E. Coli-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. Coli-positive routine sample constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in Sections 2401-51-42 through 2401-51-51, this is a violation that may pose an acute risk to health.

(C) A public water system must determine compliance with the MCL for total coliforms in Divisions (A) and (B) of this Section for each month in which it is required to monitor for total coliforms.

(D) The best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant level for total coliforms in Divisions (A) and (B) of this Section are as follows:

(1) Protection of wells from contamination by coliforms by appropriate placement and construction;

(2) Maintenance of a disinfectant residual throughout the distribution system;

(3) Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, and continual maintenance of positive water pressure in all parts of the distribution system;

(4) Filtration and/or disinfection of surface water, as described in Sections 2401-51-75 through 2401-51-84, or disinfection of ground water using strong oxidants such as chlorine, chlorine dioxide, or ozone; and

(5) For systems using ground water, compliance with the requirements of a Board-approved Wellhead Protection Program.

(Effective May 26, 1996)

2401-51-13 Routine Microbiological Sampling

(A) Suppliers of water for community and non-community water systems shall collect and analyze water for coliform bacteria in accordance with provisions of this Section to determine compliance with Section 2401-51-12.

(B) Total coliform samples shall be collected at points which are representative of the conditions within the distribution system in accordance with a written sample siting plan reviewed and approved by the Board.

(C) The monitoring frequency for total coliforms for community water systems shall be as follows:

(1) The supplier of water for a community water system shall take total coliform samples at regular time intervals, and in number proportionate to the population served by the system. In no event shall the frequency be less than:

Population Served Per Month	Minimum Number of Analyses
25 to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,500 to 25,000	25

(2) Based upon a history of no total coliform bacterial contamination and on a sanitary survey conducted by the Board in the past five years showing the water system to be supplied solely by a protected ground water source and free of sanitary defects, a community water system serving 25 to 1,000 persons, with written permission from the Board, may reduce this sampling frequency except that in no case shall it be reduced to less than one per quarter.

(D) The monitoring frequency for total coliforms for non-community water systems shall be as follows:

(1) A non-community water system using only ground water (except ground water under the direct influence of surface water as defined in Section 2401-51-03) and serving 1,000 persons or fewer must monitor each calendar quarter that the system provides water to the public, except that the frequency may be reduced with written permission from the Board, if a sanitary survey shows that the system is free of sanitary defects. The reduced frequency shall not be less than once per year.

(2) A non-community water system using only ground water (except ground water under the direct influence of surface water as defined in Section 2401-51-03) and serving more than 1,000 persons during any month must monitor at the same frequency as a like-sized community water system, as specified in Division (C) of this Section, except that the frequency may be reduced with written permission from the Board, for any month the system serves 1,000 persons or fewer. The reduced frequency shall not be less than once per year. For systems using ground

water under the direct influence of surface water, Paragraph (D)(4) of this Section applies.

(3) A non-community water system using surface water, in total or in part, must monitor at the same frequency as a like-sized community water system, as specified in Division (D) of this Section, regardless of the number of persons it serves.

(4) A non-community water system using ground water under the direct influence of surface water, as defined in Section 2401-51-03, must monitor at the same frequency as a like-sized community water system, as specified in Division (C) of this Section. The system must begin monitoring at this frequency beginning six months after the Board determines that the ground water is under the direct influence of surface water.

(E) The public water system must collect samples at regular time intervals throughout the month, except that a system which uses ground water (except ground water under the direct influence of surface water, as defined in Section 2401-51-03), and serves 4,900 persons or fewer, may collect all required samples on a single day if they are taken from different sites.

(F) A public water system that uses surface water or ground water under the direct influence of surface water, as defined in Section 2401-51-03, and does not practice filtration in compliance with Sections 2401-51-75 through 2401-51-84 must collect at least one sample near the first service connection each day the turbidity level of the source water, measured as specified in Section 2401-51-82, exceeds 1 NTU. This sample must be analyzed for the presence of total coliforms. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Board determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within 30 hours of collection. Sample results from this coliform monitoring must be included in determining compliance with the MCL for total coliforms in Section 2401-51-12.

(G) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in Section 2401-51-12.

(Effective May 26, 1996)

2401-51-14 Repeat Monitoring

(A) If a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within 24 hours of being notified of the positive result. A system which collects more than one routine sample/month must collect no fewer than three repeat samples for each total coliform-positive sample found. A system which collects one routine sample/month or fewer must collect no fewer than four repeat samples for each total coliform-positive sample found. The Board may extend the 24-hour

limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. In the case of an extension, the Board must specify how much time the system has to collect the repeat samples.

(B) The system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one away from the end of the distribution system, the Board may waive the requirement to collect at least one repeat sample upstream or downstream of the original sampling site.

(C) The system must collect all repeat samples on the same day, except that the Board may allow a system with a single service connection to collect the required set of repeat samples over a four-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 400 ml (300 ml for systems which collect more than one routine sample/month).

(D) If one or more repeat samples in the set is total coliform-positive, the public water system must collect an additional set of repeat samples in the manner specified in Divisions (A) through (C) of this Section. The additional samples must be collected within 24 hours of being notified of the positive result, unless the Board extends the limit as provided in Division (A) of this Section. The system must repeat this process until either total coliforms are not detected in one complete set of repeat samples or the system determines that the MCL for total coliforms in Section 2401-51-12 has been exceeded and notifies the Board.

(E) If a system collecting fewer than five routine samples/month has one or more total coliform-positive samples and the Board does not invalidate the sample(s) under Section 2401-51-15, it must collect at least five routine samples during the next month the system provides water to the public, except that the Board may waive this requirement if the conditions of Paragraphs (E)(1) or (E)(2) of this Section are met. The Board cannot waive the requirement for a system to collect repeat samples in Divisions (A) through (D) of this Section.

(1) The Board may waive the requirement to collect five routine samples the next month the system provides water to the public if the Board, or an agent approved by the Board, performs a site visit before the end of the next month the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Board to determine whether additional monitoring and/or any corrective action is needed. The Board cannot approve an employee of the system to perform this site visit, even if the employee

is an agent approved by the Board to perform sanitary surveys.

(2) The Board may waive the requirement to collect five routine samples the next month the system provides water to the public if the Board has determined why the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the Board must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Board official who recommends such a decision, and make this document available to the public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct the problem. The Board cannot waive the requirement to collect five routine samples the next month the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. Under this Paragraph, a system must still take at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in Section 2401-51-12. Unless the Board has determined that the system has corrected the contamination problem before the system took the set of repeat samples required in Divisions (A) through (D) of this Section, and all repeat samples were total coliform-negative.

(F) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

(G) Results of all routine and repeat samples not invalidated by the Board must be included in determining compliance with the MCL for total coliforms in Section 2401-51-12.

(Effective May 26, 1996)

2401-51-15 Invalidation of Total Coliform Samples

(A) A total coliform-positive sample invalidated under this Section does not count towards meeting the minimum monitoring requirements of this Section.

(B) The Board may invalidate a total coliform-positive sample only if the conditions of Paragraphs (B)(1), (B)(2), or (B)(3) of this Section are met.

(1) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(2) The Board, on the basis of the results of repeat samples collected as required by Divisions (A) through (D) of Section 2401-51-14, determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing

problem. The Board cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected within five service connections of the original tap are total coliform-negative (e.g., Board cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the public water system has only one service connection).

(3) The Board has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under Divisions (A) through (D) of Section 2401-51-14, and use them to determine compliance with the MCL for total coliforms in Section 2401-51-12. To invalidate a total coliform-positive sample under this Paragraph, the decision with the rationale for the decision must be documented in writing, and approved and signed by the supervisor of the Board official who recommended the decision. The Board must make this document available to the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the system has taken, or will take, to correct this problem. The Board may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(C) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Board may waive the 24-hour time limit on a case-by-case basis.

(Effective May 26, 1996)

2401-51-16 Sanitary Surveys

(A) Public water systems which do not collect five or more routine samples/month must undergo an initial sanitary survey by June 29, 1994 for community public water systems and June 29, 1999 for non-community water systems. Thereafter, systems must undergo another sanitary survey every five years,

except that non-community water systems using only protected and disinfected ground water, as defined by the Board, must undergo subsequent sanitary surveys at least every ten years after the initial sanitary survey. The Board must review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the system needs to undertake to improve drinking water quality.

(B) In conducting a sanitary survey of a system using ground water in any area which is the subject of an Environmental Quality Protection Board wellhead protection program, information on sources of contamination within the delineated wellhead protection area that was collected in the course of developing and implementing the program should be considered instead of collecting new information, if the information was collected since the last time the system was subject to a sanitary survey.

(C) Sanitary surveys must be performed by the Board or an agent approved by the Board. The system is responsible for ensuring the survey takes place.

(Effective May 26, 1996)

2401-51-17 Fecal Coliforms /Escherichia coli (E.coli) Testing

(A) If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for E. coli in lieu of fecal coliforms. If fecal coliforms or E. coli are present, the system must notify the Board by the end of the day when the system is notified of the test result unless the system is notified after the Board office is closed, in which case the system must notify the Board before the end of the next business day.

(B) The Board has the discretion to allow a public water system, on a case-by-case basis, to forgo fecal coliform or E. coli testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is fecal coliform-positive or E. coli-positive. Accordingly, the system must notify the Board as specified in Division (A) of this Section and the provisions of Division (B) of Section 2401-51-12 apply.

(Effective May 26, 1996)

2401-51-18 Analytical Methodology

(A) The standard sample volume required for total coliform analysis, regardless of analytical method used, is 100 ml.

(B) Public water systems need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

(C) Public water systems must conduct total coliform analyses in accordance with one of the following analytical methods:

(1) Multiple-Tube Fermentation (MTF) Technique, as set forth in "Standard Methods for the Examination of Water and Wastewater," 1985, American Public Health Association et al., 16th edition. Method 908, 908A, and 908B-pp. 870-878, except that 10 fermentation tubes must be used; or "Microbiological Methods for Monitoring the Environment, Water and Wastes", U.S. EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268 (EPA-600/8-78-017, December 1978, available from ORD Publications, CERL, U.S. EPA, Cincinnati, Ohio 45268), Part III, Section B.4.1-4.6.4, pp. 114-118 (Most Probable Number Method), except that 10 fermentation tubes must be used; or

(2) Membrane Filter (MF) Technique, as set forth in "Standard Methods for Examination of Water and Wastewater," 1985, American Public Health Association et al., 16th edition, Method 909, 909A and 909B-pp. 886-896; or "Microbiological Methods for Monitoring the Environment, Water and Wastes," U.S. EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268 (EPA-600/8-78-017, December 1978, available from ORD Publications, CERL, U.S. EPA, Cincinnati, Ohio 45268), Part III, Section B.2.1-2.6, pp. 108-112; or

(3) Presence-Absence (P-A) Coliform Test, as set forth in "Standard Methods for the Examination of Water and Wastewater," 1985, American Public Health Association et al., 16th edition, Method 908E-pp. 882-886; or

(4) Minimal Medium ONPG-MUG (MMO-MUG) Test, as set forth in the article "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques" (Edberg et al.), Applied and Environmental Microbiology, Volume 55, pp. 1003-1008, April 1989. (Note: The MMO-MUG Test is sometimes referred to as the Autoanalysis Colilert System.)

(D) In lieu of the 10-tube MTF Technique specified in Paragraph (C)(1) of this Section, a public water system may use the MTF Technique using either five tubes (20-ml sample portions) or a single culture bottle containing the culture medium for the MTF Technique, i.e., lauryl tryptose broth (formulated as described in "Standard Methods for the Examination of Water and Wastewater," 1985, American Public Health Association et al., 16th Edition, Method 908A-pp. 872), as long as a 100-ml water sample is used in the analysis.

(E) Public water systems must conduct fecal coliform analysis in accordance with the following procedure. When the MTF Technique or Presence-Absence (P-A) Coliform Test is used to test for total coliforms, shake the lactose-positive presumptive tube or P-A bottle vigorously and transfer the growth with a sterile 3-mm loop or sterile applicator stick into brilliant green lactose bile broth and EC medium to determine the presence of total and fecal coliforms, respectively. For EPA-approved analytical methods which use a membrane filter, remove the membrane containing

the total coliform colonies from the substrate with a sterile forceps and carefully curl and insert the membrane into a tube of EC medium. (The laboratory may first remove a small portion of selected colonies for verification.) Gently shake the inoculated EC tubes to insure adequate mixing and incubate in a water-bath at 44.5 +/- 0.2 degrees Centigrade for 24 +/- 2 hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test. The preparation of EC medium is described in "Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 16th Edition, Method 908C-pp. 879, paragraph 1a. Public water systems need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required.

(F) Copies of the analytical methods cited in "Standard Methods for the Examination of Water and Wastewater" may be obtained from the American Public Health Association et al.; 1015 Fifteenth Street, NW; Washington, DC 20005. Copies of the methods set forth in "Microbiological Methods for Monitoring the Environment, Water and Wastes" may be obtained from ORD Publications, U.S. EPA, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268. Copies of the MMO-MUG Test as set forth in the article "National Field Evaluation of a Defined Substrate Method for the Simultaneous Enumeration of Total Coliforms and Escherichia coli from Drinking Water: Comparison with the Standard Multiple Tube Fermentation Method" (Edberg et al.) may be obtained from the American Water Works Association Research Foundation, 6666 West Quincy Avenue, Denver, CO 80235. Copies may be inspected at the Board's office.

(Effective May 26, 1996)

2401-51-19 Response to Violation

(A) A public water system which has exceeded the MCL for total coliforms in Section 2401-51-12 must report the violation to the Board no later than the end of the next business day after it learns of the violation, and notify the public in accordance with Sections 2401-51-42 through 2401-51-51.

(B) A public water system which has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the Board within ten days after the system discovers the violation, and notify the public in accordance with Sections 2401-51-42 through 2401-51-51.

(Effective May 26, 1996)

2401-51-20 Maximum Contaminant Levels for Turbidity

(A) The maximum contaminant levels for turbidity are applicable to both community and non-community water systems using surface water sources in whole

or in part. The requirements in this Section apply to unfiltered systems that the Board has determined in writing pursuant Sections 2401-51-75 through 2401-51-84 must install filtration, until June 29, 1993, or until filtration is installed, whichever is later.

(B) The maximum contaminant levels for turbidity in drinking water, measured at a representative entry point(s) to the distribution system, are:

(1) Not more than one (1) Turbidity Units (TU) as determined by a monthly average pursuant to sampling and analytical requirements prescribed in Section 2401-51-21, except that five (5) or fewer turbidity units may be allowed if the supplier of water can demonstrate to the Board that the higher turbidity does not do any of the following:

- (a) interfere with disinfection;
 - (b) prevent maintenance of an effective disinfectant agent throughout the distribution system; or
 - (c) interfere with microbiological determinations;
- (2) Five (5) TU based on an average of two consecutive days pursuant to Section 2401-51-21.

(Effective May 26, 1996)

2401-51-21 Turbidity Sampling and Analytical Requirements

(A) Turbidity testing is required of all community and non-community water systems using surface water sources in whole or in part. The requirements in this Section apply to unfiltered systems that the Board has determined in writing pursuant to Sections 2401-51-75 through 2401-51-84, must install filtration, until June 29, 1993, or until filtration is installed, whichever is later.

(B) Samples shall be at least once a day at representative entry point(s) to the distribution system for determining compliance with Section 2401-51-20. If the Board determines that a reduced sampling frequency in a non-community system will not pose a risk to public health, it can reduce the required sampling frequency. Reduced turbidity frequency shall be permitted only in those public water systems that practice disinfection and which maintain an active residual disinfectant in the distribution system, and in those cases where the Board has indicated in writing that no unreasonable risk to health existed under the circumstances.

(C) The turbidity measurement shall be made by the Nephelometric Method in accordance with the recommendations set forth in the "Standard Methods for the Examination of Water and Wastewater," published by the American Public Health Association, or the EPA approved edition, or "Methods of Chemical Analysis of Water and Wastes," EPA Environmental Monitoring and Support Laboratory, March, 1979, Method 180.1- Nephelometric Method. Calibration of the turbidimeter shall be made either by the use of a formazin standard as specified in the cited references or a styrene divinyl-benzene polymer standard

(Amco-AEPA-1 Polymer) commercially available from Amco Standards international.

(D) If the result of a turbidity analysis indicates that the maximum allowable limit has been exceeded, the sampling and measurement shall be confirmed by resampling as soon as practicable and preferably within one (1) hour. If the repeat sample confirms that the maximum allowable limit has been exceeded, the supplier of water shall report to the Board within forty-eight (48) hours. The repeat sample shall be the sample used for the purpose of calculating the monthly average. If the monthly average of the daily samples exceeds the maximum allowable limit, or if the average of two samples taken on consecutive days exceeds five (5) TU, the supplier of water shall report to the Board and notify the public as directed in Sections 2401-51-41 through 2401-51-51.

(E) Sampling for non-community water systems shall begin immediately upon December 18, 1992.

(Effective May 26, 1996)

2401-51-22 Maximum Contaminant Levels for Inorganic Chemicals

(A) The maximum contaminant level for nitrate is applicable to both community and non-community water systems. The levels for the other inorganic chemicals apply only to community water systems.

(B) The following are the maximum contaminant levels for inorganic chemicals other than fluoride:

Contaminant	MCL (mg/l)
Arsenic	0.050
Barium	1.000
Cadmium	0.010
Chromium	0.050
Fluoride	4.000
*Lead	*0.050
Mercury	0.002
Nitrate (as N)	10.000
Selenium	0.010
Silver	0.050

*Additional Regulations apply. See Sections 2401-51-35, 2401-51-36, and 2401-51-48.

(Effective May 26, 1996)

2401-51-23 Inorganic Chemical Sampling and Analytical Requirements

(A) Sampling and analyses for inorganic chemicals shall be done in compliance with Sections 2401-51-22 and 2401-51-23.

(B) Initial sampling and analyses shall be completed by December 18, 1992. The sampling frequency shall be as follows:

(1) Community water supplies shall perform sampling and analyses for inorganic chemicals once every year

for surface water systems and once every three years for ground water systems.

(2) For non-community water systems, whether supplied by surface or ground water sources, analyses for nitrate shall be completed upon the December 18, 1992 effective date of these regulations. These analyses shall be repeated once every three years or as otherwise determined by the Board.

(C) If the result of an analysis made pursuant to this Section indicates that the level of any contaminant listed in Section 2401-51-22 exceeds the maximum contaminant level, the supplier of water shall report to the Board within seven (7) days and initiate three additional analyses at the same sampling point within one (1) month.

(D) When the average of four (4) analyses made pursuant to this Section, rounded to the same significant figures as the maximum contaminant level for the substance in question, exceeds the maximum contaminant level, the supplier of water shall report to the Board pursuant to Section 2401-51-41 and perform public notification pursuant to Sections 2401-51-42 through 2401-51-51. Monitoring following public notification shall be at a frequency designated by the Board and shall continue until the maximum contaminant level has not been exceeded in two successive samples or until a monitoring schedule as a condition of a variance, exemption or enforcement action shall become effective.

(E) The provisions of Divisions (C) and (D) of this Section notwithstanding, compliance with the maximum contaminant level for nitrate shall be determined on the basis of the mean of two analyses. When a level exceeding the maximum contaminant level for nitrate is found, a second analysis shall be initiated within twenty-four (24) hours, and, if the mean of the two analyses exceeds the maximum contaminant level, the supplier of water shall report his findings to the Board pursuant to Section 2401-51-41 and notify the public as directed by Sections 2401-51-42 through 2401-51-51.

(F) For the initial analyses required by Divisions (A) and (B) of this Section, data for surface waters acquired within one year prior to December 18, 1992 and data for ground waters acquired within three (3) years prior to December 18, 1992 may be substituted at the discretion of the Board.

(G) Analyses conducted to determine compliance with the maximum contaminant levels prescribed in Section 2401-51-22 shall be made in accordance with the methods prescribed by 40 CFR 141.23(f).

(H) In addition to complying with Divisions (A) through (G) of this Section, systems monitoring for fluoride must comply with the requirements of the following Paragraphs:

(1) Where the system draws water from one source, the system shall take one sample at the entry point to the distribution system.

(2) Where the system draws water from more than one source, the system must sample each source at the entry points to the distribution system.

(3) If the system draws water from more than one source and sources are combined before distribution, the system must sample at the entry point to the distribution system during periods representative of the maximum fluoride levels occurring under normal operating conditions.

(4) The Board may alter the frequencies for fluoride monitoring as set out in this Section to increase or decrease such frequency considering the following factors: reported concentrations from previously required monitoring; the degree of variation in reported concentrations; and other factors which may affect fluoride concentrations such as changes in pumping rates in ground water supplies or significant changes in the system's configuration, operating procedures, source of water, and changes in stream flows.

(5) Monitoring may be decreased from the frequencies specified in this Section upon application in writing by the water system if the Board determines that the system is unlikely to exceed the MCL, considering the factors listed in Paragraph (H)(4) of this Section. Such determination shall be made in writing and set forth the basis for the determination. In no case shall monitoring be reduced to less than one (1) sample every 10 years. For systems monitoring once every 10 years, the Board shall review the monitoring results every 10 years to determine whether more frequent monitoring is necessary.

(6) Analysis for fluoride under this Section shall only be used for determining compliance if conducted by laboratories that have analyzed Performance Evaluation samples to within 10% (plus or minus) of the reference value at fluoride concentrations from 1.0 mg/l to 10.0 mg/l, within the last 12 months.

(7) Compliance with the MCL shall be determined based on each sampling point. If any sampling point is determined to be out of compliance, the system is deemed to be out of compliance.

(Effective May 26, 1996)

2401-51-24 Maximum Contaminant Levels for Organic Chemicals Other Than TTHMs and VOCs

The following are the maximum contaminant levels for organic chemicals other than TTHM and VOC. The maximum contaminant levels for these organic chemicals apply to all community water systems. Compliance with these maximum contaminant levels is calculated as directed in Section 2401-51-25.

Contaminant MCL	(mg/l)
(A) Chlorinated hydrocarbons:	
Endrin (1,2,3,4,10, 10-hexachloro-6, 7-epoxy-1,4, 4a,5,6,7,8,81-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene)	0.0002
Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	0.004
Methoxychlor (1,1,1-Trichloro-2, 2-bis [p-	0.1

methoxyphenyl] ethane)	
Toxaphene (C ₁₀ H ₁₀ Cl ₈ -Technical chlorinated camphene, 67-69 percent chlorine)	0.005
(B) Chlorophenoxy:	
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxy-propionic acid)	0.01

(Effective May 26, 1996)

2401-51-25 Sampling and Analytical Requirements for Organic Chemical Other Than TTHMs and VOCs

An analysis of substances for the purpose of determining compliance with Section 2401-51-24 shall be made as follows:

(A) For all community water systems utilizing surface water sources, analyses shall be completed by December 18, 1992. Samples analyzed shall be collected during the period of the year designated by the Board as the period when contamination by pesticides is most likely to occur. These analyses shall be repeated at intervals specified by the Board but in no event less frequent than at three-year intervals.

(B) For community water systems utilizing only ground water sources, analyses shall be completed by those systems specified by the Board.

(C) If the result of an analysis made pursuant to Divisions (A) and (B) of this Section indicates that the level of any contaminant listed in Section 2401-51-24 exceeds the maximum contaminant level, the supplier of water shall report to the Board within seven (7) days and initiate three (3) additional analyses within one month.

(D) When the average of four (4) analyses made pursuant to Division (C) of this Section, rounded to the same significant figures as the maximum contaminant level for the substance in question, exceeds the maximum contaminant level, the supplier of water shall report to the Board as directed in Section 2401-51-41 and give notice to the public as directed in Sections 2401-51-42 through 2401-51-51. Monitoring after public notification shall be at a frequency designated by the Board and shall continue until the maximum contaminant level has not been exceeded in two successive samples or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

(E) For the initial analysis required by Divisions (A) and (B) of this Section, data for surface water systems acquired within one year prior December 18, 1992 and data for ground water systems acquired within three years prior to December 18, 1992 may be substituted at the discretion of the Board.

(F) Analysis made to determine compliance with Section 2401-51-24 shall be made in accordance with methods prescribed in 40 CFR 141.24(e) and (f).

(Effective May 26, 1996)

2401-51-26 Maximum Contaminant Level for Total Trihalomethanes

The maximum contaminant level for total trihalomethanes listed in this Section applies only to community water systems which serve a population of 10,000 or more individuals and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process. For the purposes of these regulations, the concentration of total trihalomethanes is defined as the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform) and trichloromethane (chloroform). Compliance with the maximum contaminant level is calculated as directed in Section 2401-51-27(G).

<u>Contaminant</u>	<u>MCL (mg/l)</u>
Total	Trihalomethanes 0.10

(Effective May 26, 1996)

2401-51-27 Total Trihalomethane Sampling and Analytical Requirements

(A) Initial sampling to determine compliance with Section 2401-51-26 shall begin immediately upon December 18, 1992. The minimum number of samples required to be collected by the system shall be based upon the number of treatment plants used by the system, except that multiple wells drawing from a single aquifer may, with the approval of the Board, be considered one treatment plant for determining the minimum number of samples. All samples taken within an established frequency shall be collected within a 24-hour period.

(B) For all community water systems using surface water sources in whole or in part, and for all community water systems using only ground water sources that have not been determined by the Board to qualify for the monitoring requirements of Division (A) of this Section, analyses for total trihalomethanes shall be performed at quarterly intervals on at least four water samples for each treatment plant used by the system. At least 25% of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining 75% shall be taken at representative locations in the distribution system taking into account number of persons served, different sources of water and different treatment methods employed. The results of all analyses per quarter shall be arithmetically averaged and reported to the Board within 30 days of the system's receipt of such results. All samples collected shall be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling

and analyses shall be conducted in accordance with the methods listed in Division (H) of this Section.

(C) Upon the written request of a community water system, the monitoring frequency required by Division (B) of this Section may be reduced by the Board to a minimum of one sample analyzed for TTHMs per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The determination of reduced monitoring frequency must be made in writing by the Board and be based upon data from at least one (1) year of monitoring in accordance with Division (B) of this Section, which indicates compliance with the TTHM maximum contaminant level of 0.10 mg/l pursuant to Section 2401-51-26; and be based upon an assessment of local conditions specific to the system which demonstrate that total trihalomethane concentrations will be consistently below the maximum contaminant level.

(D) If at any time during which the reduced monitoring frequency prescribed by Divisions (C) and (D) of this Section applies, the results from any analysis exceed 0.10 mg/l of TTHMs and such results are confirmed by at least one check sample taken promptly after such results are received, the system shall immediately begin monitoring in accordance with Division (B) of this Section and such monitoring shall continue for at least one (1) year before the frequency may be reduced again. In the event that the system makes any significant change to its source of water or treatment program, the system shall immediately begin monitoring in accordance with Division (B) of this Section and such monitoring shall continue for at least one (1) year before the frequency may be reduced again. At the discretion of the Board, a system's monitoring frequency may and should be increased above the minimum in those cases where it is necessary to detect variations in the TTHM levels within the distribution system.

(E) Upon the written request to the Board, a community water system using only ground water sources may seek to have the monitoring frequency required by Division (B) of this Section reduced to a minimum of one sample for maximum TTHM potential per year for each treatment plant used by the system and taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system shall submit to the Board the results of at least one sample analyzed for maximum TTHM potential for each treatment plant used by the system and taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system's monitoring frequency may only be reduced upon a written determination by the Board that, based upon the data submitted by the system, the system has a maximum TTHM potential of less than 0.10 mg/l and that, based upon an assessment of local conditions specific to the system, the system is not likely to approach or exceed the maximum contaminant level for TTHMs. The results of all analyses shall be reported to the Board within 30 days of the system's receipt of such results. All

samples collected shall be used for determining whether the system must comply with the monitoring requirements of Divisions (B), (C), and (D) of this Section, unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in Division (H) of this Section.

(F) If at any time during which the reduced monitoring frequency prescribed by Division (E) of this Section applies, the results from any analysis taken by the system for maximum TTHM potential are equal to or greater than 0.10 mg/l, and such results are confirmed by at least one check sample taken promptly after such results are received, the system shall immediately begin monitoring in accordance with Division (B) of this Section and such monitoring shall continue for at least one (1) year before the frequency may be reduced again. In the event that the system makes any significant change to its raw water source or treatment program, the system shall immediately analyze an additional sample for maximum TTHM potential taken at a point in the distribution system reflecting maximum residence time of the water in the system for the purpose of determining whether the system must comply with the monitoring requirements of Division (B) of this Section. At the discretion of the Board, the monitoring frequency may and should be increased above the minimum in those cases where it is necessary to detect variations in the TTHM levels within the distribution system.

(G) Compliance with Section 2401-51-26 shall be determined based upon a running annual average of quarterly samples collected by the system as prescribed in Divisions (B) or (C) of this Section. If the average of samples covering any 12 month period exceeds the maximum contaminant level, the supplier of water shall report to the Board as directed by Section 2401-51-41 and notify the public as directed by Sections 2401-51-42 through 2401-51-51.

(H) Sampling and analyses made pursuant to Sections 2401-51-26 and 2401-51-27 shall be conducted by one of the following EPA-approved methods:

(1) "The Analysis of Trihalomethanes in Drinking Water by the Purge and Trap Method," Method 501.1, EMSL, EPA Cincinnati, Ohio.

(2) "The Analysis of Trihalomethanes in Drinking Water by Liquid/Liquid Extraction," Method 501.2, EMSL, EPA Cincinnati, Ohio. Samples for TTHMs shall be dechlorinated upon collection to prevent further production of trihalomethanes, according to the procedures described in the above two methods. Samples for maximum TTHM potential should not be dechlorinated and should be held for seven days at 25 degrees Centigrade (or above) prior to analysis, according to the procedures described in the above two methods.

(I) Before a community water system makes any significant modifications to its existing treatment process for the purposes of achieving compliance with Section 2401-51-26, such system must submit and obtain Board approval of a detailed plan setting

forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not be adversely affected by such modification. Each system must comply with the provisions set forth in the plan approved by the Board. At a minimum, an approved plan shall require the system modifying its disinfection practice to:

- (1) Evaluate the water system for sanitary defects and evaluate the source water for biological quality;
- (2) Evaluate its existing treatment practices and consider improvements that will minimize disinfectant demand and optimize finish water quality throughout the distribution system;
- (3) Provide baseline water quality survey data of the distribution system. Such data should include the results from monitoring for coliform and fecal coliform bacteria, fecal streptococci, standard plate count at 35 degrees Centigrade and 20 degrees Centigrade, phosphate, ammonia nitrogen and total organic carbon. Virus studies should be required where source waters are heavily contaminated with sewage effluent.
- (4) Conduct additional monitoring to assure continued maintenance of optimal biological quality in finished water, for example, when chloramines are introduced as disinfectants or when pre-chlorination is being discontinued. Additional monitoring should also be required by the Board for chlorate, chlorite and chlorine dioxide when chlorine dioxide is used. Standard plate count analyses should be also be required by the Board as appropriate before and after any modifications.
- (5) Consider inclusion in the plan of provisions to maintain an active disinfectant residual throughout the distribution system at all times during and after the modification.

(Effective May 26, 1996)

2401-51-28 Maximum Contaminant Levels for Volatile Organic Chemicals

(A) The following maximum contaminant levels for volatile organic chemicals apply to community water systems and non-transient non-community water systems. Compliance with the maximum contaminant levels for volatile organic chemicals is calculated pursuant to Section 2401-51-29.

Contaminant	MCL (mg/l)
Benzene	0.005
Carbon Tetrachloride	0.005
1,2-Dichloroethane	0.005
Trichloroethylene	0.005
Para-Dichlorobenzene	0.075
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.20
Vinyl Chloride	0.002

(B) The Board identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for volatile organic chemicals listed in Division (A) above: central treatment using packed tower aeration; central treatment using granular activated carbon for all these chemicals except vinyl chloride.

(Effective May 26, 1996)

2401-51-29 Volatile Organic Chemicals Sampling and Analytical Requirements

Initial sampling to determine compliance with Section 2401-51-28 shall begin immediately upon December 18, 1992 and analyses shall be completed by December 18, 1993 for both community and non-transient non-community water systems. Analyses for the purposes of determining compliance with Section 2401-51-28 shall be conducted as follows:

- (A) Ground water systems shall sample at points of entry to the distribution system representative of each ell but after any application of treatment. Sampling must be conducted at the same location(s) every three months for one (1) year except as provided for in Paragraph (H)(1) of this Section.
- (B) Surface water systems shall sample at points in the distribution system representative of each source or at entry points to the distribution system after any application of treatment. Surface water systems must sample each source every three months except as provided for in Paragraph (H)(2) of this Section. Sampling must be conducted at the same location or a more representative location each quarter.
- (C) If the system draws water from more than one source and sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions.
- (D) All community water systems and non-transient water systems serving more than 10,000 people shall analyze all distribution and/or entry-point samples, as appropriate, representing all source waters beginning no later than January 1, 1988. All community water systems and non-transient water systems serving from 3,300 to 10,000 people shall analyze all distribution and/or entry-point samples, as required in this Section, representing all source waters beginning no later than January 1, 1989. All other community water systems and non-transient water systems shall analyze all distribution and/or entry-point samples, as required in this Section, representing all source waters beginning no later than January 1, 1991.
- (E) The Board may require confirmation samples for positive or negative results. If a confirmation sample(s) is required by the Board or EPA, then the sample result(s) should be averaged with the first sample result and used for compliance determination in accordance with Division (I) of this Section. The

Board has the discretion to delete results of obvious sampling errors from this calculation.

(F) The analysis for vinyl chloride is required only for ground water systems that have detected one or more of the following two-carbon organic compounds: Trichloro- ethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1- trichloroethane, cis-1,2-dichloroethylene, trans-1,2- dichloroethylene, or 1,1-dichloroethylene. The analysis for vinyl chloride is required at each distribution or entry point at which one or more of the two-carbon organic compounds were found. If the first analysis does not detect vinyl chloride, the Board may reduce the frequency of the vinyl chloride monitoring to once every three (3) years for that sample location or other sample locations which are more representative of the same source. Surface water systems may be required to analyze for vinyl chloride at the discretion of the Board.

(G) A State or individual public water system may choose to composite up to five samples from one or more public water systems. Compositing of samples is to be done in the laboratory by the procedures listed below. Samples must be analyzed within fourteen (14) days of collection. If any organic contaminant listed in Section 2401-51-28 is detected in the original composite sample, a sample from each source that made up the composite sample must be reanalyzed individually within fourteen (14) days of sampling. The sample for reanalysis cannot be the original sample but can be a duplicate sample. If duplicates of the original samples are not available, new samples must be taken from each source used in the original composite and analyzed for VOCs. Reanalysis must be accomplished within fourteen (14) days of the second sample. To composite samples, the following procedure must be followed:

(1) Compositing samples prior to GC analysis.

(a) add 5 ml or equal larger amounts of each sample (up to 5 samples are allowed) to a 25 ml glass syringe. Special precautions must be made to maintain zero headspace in the syringe.

(b) the samples must be cooled at 4 degrees Centigrade during this step to minimize volatilization losses.

(c) mix well and draw out a 5-ml aliquot for analysis.

(d) follow sample introduction, purging, and desorption steps described in the method.

(e) if less than five samples are used for compositing, a proportionately smaller syringe may be used.

(2) Compositing samples prior to GC/MS.

(a) inject 5-ml or equal larger amounts of each aqueous sample (up to 5 samples are allowed) into a 25-ml purging device using the sample introduction technique described in the method.

(b) the total volume of the sample in the purging device must be 25 ml.

(c) purge and desorb as described in the method.

(H) The Board may reduce the monitoring frequency specified in Divisions (A) and (B) of this Section, as explained herein:

(1) The monitoring frequency for ground- water systems is as follows:

(a) when VOCs are not detected in the first sample (or any subsequent samples that may be taken) and the system is not vulnerable as defined in Paragraph (H)(4) of this Section, monitoring may be reduced to one (1) sample and must be repeated every five (5) years.

(b) when VOCs are not detected in the first sample (or any subsequent sample that may be taken) and the system is vulnerable as defined in Paragraph (H)(4) of this Section: monitoring (i.e., one sample) must be repeated every three (3) years for systems >500 connections or every five (5) years for systems less than or equal to 500 connections.

(c) if VOCs are detected in the first sample (or any subsequent sample that may be taken), regardless of vulnerability, monitoring must be repeated every three (3) months, as required under Division (A) of this Section.

(2) The repeat monitoring frequency for surface water systems is as follows:

(a) when VOCs are not detected in the first year of quarterly sampling (or any other subsequent sample that may be taken) and the system is not vulnerable as defined in Paragraph (H)(4), monitoring is only required at the discretion of the Board.

(b) when VOCs are not detected in the first year of quarterly sampling (or any other subsequent sample that may be taken) and the system is vulnerable as defined in Paragraph (H)(4): monitoring must be repeated every three (3) years for systems >500 connections or every five (5) years for systems less than or equal to 500 connections.

(c) when VOCs are detected in the first year of quarterly sampling (or any other subsequent sample that may be taken), regardless of vulnerability, monitoring must be repeated every three (3) months, as required under Division (B) of this Section.

(3) The Board may reduce the frequency of monitoring to once per year for a ground water system or surface water system detecting VOCs at levels consistently less than the MCL for three consecutive years.

(4) Vulnerability of each public water system shall be determined by the Board based upon an assessment of the following factors:

(a) previous monitoring results;

(b) number of persons served by the public water system;

(c) proximity of a smaller system to a larger system;

(d) proximity to commercial or industrial use, disposal, or storage of Volatile Synthetic Organic Chemicals;

(e) protection of the water source.

(5) A system is deemed to be vulnerable for a period of three years after any positive measurement of one or more contaminants listed in Section 2401-51-30, Unregulated Contaminants, or Section 2401-51-28, except for trihalomethanes or other demonstrated disinfection by-products.

(I) Compliance with Section 2401-51-28 shall be determined based on the results of running annual average of quarterly sampling for each sample location. If one location's average is greater than the

MCL, then the system shall be deemed to be out of compliance immediately. If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, only that part of the system that exceeds any MCL as specified in Section 2401-51-28 will be deemed out of compliance. The Board may reduce the public notice requirement to that portion of the system which is out of compliance. If any one sample result would cause the annual average to be exceeded, then the system shall be deemed to be out of compliance immediately. For systems that only take one sample per location because no VOCs were detected, compliance shall be based on that one sample.

(J) Analysis under this Section shall be conducted using the EPA methods prescribed in 40 CFR 141.24(g)(10) or their equivalent as approved by EPA. These methods are contained in "Methods for the Determination of Organic Compounds in Finished Water," September 1986, available from Environmental and Support Laboratory (EMSL), EPA, Cincinnati, OH 45268.

(K) Analysis under Division (J) of this Section shall only be conducted by laboratories that have received conditional approval by the Board or EPA according to the following conditions:

(1) To receive conditional approval to conduct analyses for benzene, vinyl chloride, carbon tetrachloride, 1,2-dichloroethane, trichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, and paradichlorobenzene the laboratory must:

(a) analyze Performance Evaluation samples which include these substances provided by the EPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the Board.

(b) achieve quantitative acceptance limits under Paragraphs (K)(1)(c) and (K)(1)(d) of this Section for at least six of the seven subject organic chemicals.

(c) achieve quantitative results on the analyses performed under (K)(1)(a) of this Section that are within ± 20 percent of the actual amount of the substances in the Performance Evaluation sample when the actual amount is greater than or equal to 0.010 mg/l.

(d) achieve quantitative results on the analyses performed under (K)(1)(a) of this Section that are within ± 40 percent of the actual amount of the substances in the Performance Evaluation sample when the actual amount is less than 0.010 mg/l.

(e) achieve a method detection limit of 0.0005 mg/l, according to the procedures in 40 CFR Part 136, Appendix B.

(f) be currently approved by EPA or Board for the analyses of trihalomethanes under Sections 2401-51-26 and 2401-51-27.

(2) To receive conditional approval for vinyl chloride the laboratory must:

(a) analyze Performance Evaluation samples provided by the EPA Environmental Monitoring and Support Laboratory or equivalent samples provided by the Board.

(b) achieve quantitative results on the analyses performed under (K)(1)(a) of this Section that are within ± 40 percent of the actual amount of vinyl chloride in the Performance Evaluation sample.

(c) achieve a method detection limit of 0.0005 mg/l, according to the procedures in 40 CFR Part 136, Appendix B.

(d) receive approval or be currently approved by the Board or EPA under Paragraph (K)(1) of this Section.

(L) The Board has the authority to allow the use of monitoring data collected after January 1, 1983, for purposes of monitoring compliance. If the data is consistent with the other requirements in this Paragraph, the Board may use that data to represent the initial monitoring if the system is determined by the Board not to be vulnerable under the requirements of this Section.

(M) The Board may increase required monitoring where necessary to detect variations within the system.

(N) Each approved laboratory must determine the method detection limit (MDL), as defined in Appendix B of 40 CFR Part 136, at which it is capable of detecting VOCs. The acceptable MDL is 0.0005 mg/l. This concentration is the detection level for purposes of Divisions (E), (F), (G), and (H) of this Section.

(Effective May 26, 1996)

2401-51-30

Special Sampling Requirements for Unregulated Organic Chemicals

(A) List of Unregulated Organic Contaminants. All community and non-transient non-community water systems shall monitor for the 36 unregulated organic chemicals listed below except as provided for in 2401-51-31(E).

- (1) Chloroform;
- (2) Bromodichloromethane;
- (3) Chlorodibromomethane;
- (4) Bromoform;
- (5) trans-1,2-Dichloroethylene;
- (6) Chlorobenzene;
- (7) m-Dichlorobenzene;
- (8) Dichloromethane;
- (9) cis-1,2-Dichloroethylene;
- (10) o-Dichlorobenzene;
- (11) Dibromomethane;
- (12) 1,2-Dichloropropene;
- (13) Tetrachloroethylene;
- (14) Toluene;
- (15) p-Xylene;
- (16) o-Xylene;
- (17) m-Xylene;
- (18) 1,1-Dichloroethane;
- (19) 1,2-Dichloropropane;
- (20) 1,1,2,2-Tetrachloroethane;
- (21) Ethylbenzene;
- (22) 1,3-Dichloropropane;
- (23) Styrene;

- (24) Chloromethane;
 - (25) Bromomethane;
 - (26) 1,2,3-Trichloropropane;
 - (27) 1,1,1,2-Tetrachloroethane;
 - (28) Chloroethane;
 - (29) 1,1,2-Trichloroethane;
 - (30) 2,2-Dichloropropane;
 - (31) o-Chlorotoluene;
 - (32) p-Chlorotoluene;
 - (33) Bromobenzene;
 - (34) 1,2-Dichloropropene;
 - (35) Ethylene dibromide (EDB);
 - (36) 1,2-Dibromo-3-chloropropane (DBCP)
- (B) Additional Unregulated Organic Contaminants. Monitoring for the 15 unregulated organic contaminants listed below may be required at the discretion of the Board.
- (1) 1,2,4-Trimethylbenzene;
 - (2) 1,2,4-Trichlorobenzene;
 - (3) 1,2,3-Trichlorobenzene;
 - (4) n-Propylbenzene;
 - (5) n-Butylbenzene;
 - (6) Naphthalene;
 - (7) Hexachlorobutadiene;
 - (8) 1,3,5-Trimethylbenzene;
 - (9) p-Isopropyltoluene;
 - (10) Isopropylbenzene;
 - (11) Tert-Butylbenzene;
 - (12) Sec-butylbenzene;
 - (13) Fluorotrichloromethane;
 - (14) Dichlorodifluoromethane;
 - (15) Bromochloromethane.

(Effective May 26, 1996)

2401-51-31 Unregulated Organic Chemical Sampling and Analytical Requirements

- (A) All community and non-transient non-community water systems shall monitor for the contaminants prescribed in Section 2401-51-30 by the dates specified below:
- (1) Systems serving over 10,000 persons shall begin monitoring no later than January 1, 1988.
 - (2) Systems serving from 3,300 to 10,000 persons shall begin monitoring no later than January 1, 1989.
 - (3) Systems serving less than 3,300 persons shall begin monitoring no later than January 1, 1991.
- (B) Surface water systems shall sample at points in the distribution system representative of each water source or at entry points to the distribution system after any application of treatment. The minimum number of samples is one year of quarterly samples.
- (C) Ground water systems shall sample at points of entry to the distribution system representative of each well after any application of treatment. The minimum number of samples is one sample per entry point to the distribution system.
- (D) The Board may require confirmatory samples for positive or negative results.

- (E) Community water systems and non-transient non-community water systems must monitor for EDB and DBCP only if the Board determines that they are vulnerable to contamination by either or both of these substances. For the purpose of this Paragraph, a vulnerable system is defined as a system which is potentially contaminated by EDB and DBCP, including surface water systems where these two compounds are applied, manufactured, stored, disposed of, or shipped upstream, and for ground water systems in areas where the compounds are applied, manufactured, stored, disposed of, or shipped in the ground water recharge basin, or for ground water systems that are in proximity to underground storage tanks that contain leaded gasoline.
- (F) Public water systems may use monitoring data collected any time after January 1, 1983, to meet the

TABLE A		
AVERAGE ANNUAL CONCENTRATIONS ASSUMED TO PRODUCE A TOTAL BODY OR ORGAN DOSE OF 4 MILLIREM/YEAR		
Radionuclide	Critical Organ	pCi Per Liter
Tritium	Total Body	20,000
Strontium-90	Bone Marrow	8

requirements for unregulated monitoring, provided that the monitoring program was consistent with the requirements of Sections 2401-51-28 through 2401-51-31.

(G) All community and non-transient non-community water systems shall repeat the monitoring required in this Section no less frequently than every five (5) years from the dates specified in Division (A) of this Section.

(H) States or public water systems may composite up to five samples when for substances in Section 2401-51-30.

(I) Analyses under Sections 2401-51-28 through 2401-51-31 shall be conducted using the recommended methods as prescribed in 40 CFR 141.40(g).

(J) Analyses under Sections 2401-51-28 through 2401-51-31 shall only be conducted by laboratories approved under 2401-51-29(K). In addition to the requirements of 2401-51-29(K), each laboratory analyzing for EDB and DBCP must achieve a method detection limit for EDB and DBCP of 0.00002 mg/l, according to the procedures in Appendix B of 40 CFR Part 136.

(Effective May 26, 1996)

2401-51-32 Maximum Contaminant Levels for Radionuclides

The following are the maximum contaminant levels for radionuclides which apply to community water systems:

- (A) Combined Radium-226 and Radium-228: 5 pCi/l.
- (B) Gross Alpha Particle Activity (including radium-226 but excluding radon and uranium): 15 pCi/l.

(C) Beta Particle and Photon Activity from Man-Made Radionuclides:

(1) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than four (4) millirem/year.

(2) Except for the radionuclides listed in Table A, the concentration of man-made radionuclides causing 4 millirems total body or organ dose equivalent shall be calculated on the basis of a 2 liter per day drinking water intake using the 168 hour data listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure," National Bureau of Standards Handbook 69. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year.

(Effective May 26, 1996)

2401-51-33 Radionuclides Sampling and Analytical Requirements

(A) Monitoring requirements for gross alpha particle activity, radium 226 and radium-228.

(1) Initial sampling to determine compliance with Section 2401-51-32 shall begin immediately upon the December 18, 1992 effective date of these regulations and the analysis shall be completed within one year of that dates. Compliance shall be based on the analysis of an annual composite of four consecutive quarterly samples or the average of the analyses of four samples obtained at quarterly intervals.

(b) when the gross alpha particle activity exceeds 5 pCi/l, the same or an equivalent sample shall be analyzed for radium-228.

(2) For the initial analysis required by Paragraph (A)(1) of this Section, data acquired within one year prior to December 18, 1992 may be substituted at the discretion of the Board.

(a) more frequent monitoring shall be conducted when ordered by the Board in the vicinity of mining or other operations which may contribute alpha particle radioactivity to either surface or ground water sources of drinking water.

(b) a supplier of water shall monitor in conformance with Paragraph (A)(1) of this Section within one year of the introduction of a new water source for a community water system. More frequent monitoring shall be conducted when ordered by the Board in the event of possible contamination or when changes in the distribution system or treatment processing occur which may increase the concentration of radioactivity in finished water.

(c) a community water system using two or more sources having different concentrations of radioactivity shall monitor source water, in addition to

water from a free-flowing tap, when ordered by the Board.

(d) monitoring for compliance with Section 2401-51-32 after the initial period need not include radium-228, except when required by the Board, provided that the average annual concentration of radium-228 has been assayed at least once using the quarterly sampling procedure required by Paragraph (A)(1) of this Section.

(e) suppliers of water shall conduct annual monitoring of any community water system in which the radium-226 concentration exceeds 3 pCi/l, when ordered by the Board.

(4) If the average annual maximum contaminant level for gross alpha particle activity or total radium as set forth in Section 2401-51-32 is exceeded, the supplier of a community water system shall give notice to the Board pursuant to Section 2401-51-41 and notify the public as required by Sections 2401-51-42 through 2401-51-51. Monitoring at quarterly intervals shall be continued until the annual average concentration no longer exceeds the maximum contaminant level or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

(B) Monitoring Requirements for Manmade Radioactivity in Community Water Systems.

(1) By December 18, 1992, systems using surface water sources and serving more than 100,000 persons and such other community water systems as are designated by the Board shall be monitored for compliance with Section 2401-51-32 by analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. Compliance with Section 2401-51-32 may be assumed if the average annual concentration of gross beta particle activity is less than 50 pCi/l and if the average annual concentrations of tritium and strontium-90 are less than those listed in Table A, provided that if both radionuclides are present the sum of their annual dose equivalents to bone marrow shall not exceed 4 millirem/year.

(a) if the gross beta particle activity exceeds 50 pCi/l, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance with Section 2401-51-32.

(b) suppliers of water shall conduct additional monitoring, as ordered by the Board, to determine the concentration of man-made radioactivity in principal watersheds designated by the Board.

(c) at the discretion of the Board, suppliers of water utilizing only ground waters may be required to monitor for man-made radioactivity.

(2) For the initial analysis required by Paragraph (B)(2) of this Section, data acquired within one year prior to December 18, 1992, may be substituted at the discretion of the Board.

(3) After the initial analysis required by Paragraph (B)(2) of this Section suppliers of water shall monitor

at least every four years following the procedure given in Paragraph (B)(2) of this Section.

(4) The supplier of any community water system designated by the Board as utilizing waters contaminated by effluent from nuclear facilities shall immediately initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium.

(a) quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended. If the gross beta particle activity in a sample exceeds 15 pCi/l, the same or an equivalent sample shall be analyzed for strontium-89 and cesium-134. If the gross beta particle activity exceeds 50 pCi/l, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance with Section 2401-51-32.

(b) for iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. As ordered by the Board, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

(c) annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. The latter procedure is recommended.

(d) the Board may allow the substitution of environmental surveillance data taken in conjunction with a nuclear facility for direct monitoring of man-made radioactivity by the supplier of water where the Board determines such data is applicable to a particular community water system.

(5) If the average annual maximum contaminant level for man-made radioactivity set forth in Section 2401-51-32 is exceeded, the operator of a community water system shall give notice to the Board pursuant to Section 2401-51-41 and to the public as required by Sections 2401-51-42 through 2401-51-51. Monitoring at monthly intervals shall be continued until the concentration no longer exceeds the maximum contaminant level or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

(6) Analyses made to determine compliance with Section 2401-51-32 shall be made in accordance with procedures prescribed by 40 CFR 141.25.

2401-51-34 Special Monitoring for Sodium

(A) Suppliers of water for community water systems shall collect and analyze one (1) sample per treatment plant at the entry point of the distribution system for the determination of sodium concentration levels. Samples must be collected and analyzed annually for systems using surface water sources in whole or in part, and at least every three years for systems using solely ground water sources. The

minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the approval of the Board, be considered one treatment plant for determining the minimum number of samples. The supplier of water may be required by the Board to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

(B) The supplier of water shall report to the Board the results of the analyses for sodium within the first 10 days of the month following the month in which the sample results were received or within the first 10 days following the end of the required monitoring period as stipulated by the Board, whichever of these is first. If more than annual sampling is required the supplier shall report the average sodium concentration within 10 days of the month following the month in which the analytical results of the last sample used for the annual average were received.

(C) The Board shall notify appropriate local public health officials of the sodium levels by written notice by direct mail within three months.

(D) Analyses for sodium shall be performed by the flame photometric method in accordance with the procedures described in "Standard Methods for the Examination of Water and Wastewater," 14th Edition, pp. 250-253; or by Method 273.1, Atomic Absorption-Direct Aspiration, or Method 273.2, Atomic Absorption-Graphite Furnace, in "Methods for Chemical Analysis of Water and Waste," EMSL, Cincinnati, EPA, 1979; or by Method D1428-64(a) in Annual Book of ASTM Standards, Part 31, Water.

(Effective May 26, 1996)

2401-51-35 Special Monitoring for Corrosivity Characteristics

(A) Suppliers of water for community water systems shall collect samples from a representative entry point to the water distribution system for the purposes of analysis to determine the corrosivity characteristics of the water.

(1) The supplier shall collect two (2) samples per treatment plant for analysis for each plant using surface water sources wholly or in part or more if required by the Department: one during mid-winter and one during mid-summer. The supplier of the water shall collect one (1) sample per plant for analysis for each plant using ground water sources or more if required by the Board. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the approval of the Board, be considered one treatment plant for determining the minimum number of samples.

(2) Determination of the corrosivity characteristics of the water shall include measurement of pH, calcium

hardness, alkalinity, temperature, total dissolved solids (total filterable residue), and calculation of the Langlier Index in accordance with Division (C) of this Section. The determination of corrosivity characteristics shall only include one (1) round of sampling (two samples per plant for surface water and one sample per plant for ground water sources). The Board may require more frequent monitoring as appropriate. The Board may also require monitoring for additional parameters which indicate corrosivity characteristics, such as chlorides and sulfates. In certain cases, the Aggressive Index, as described in Division (C) of this Section, may be approved by the Board for use instead of the Langlier Index; the supplier shall request in writing to the Board.

(B) The supplier of water shall report to the Board the results of the analyses for the corrosivity characteristics within the first 10 days of the month following the month in which the sample results were received. If more frequent sampling is required by the Board, the supplier can accumulate the data and can report each value within 10 days of the month following the month in which the analytical results of the last sample were received.

(C) Analyses conducted to determine the corrosivity of the water shall be made in accordance with the methods and procedures described in 40 CFR 141.42(c).

(D) Community water supply systems shall identify whether the following construction materials are present in their distribution system and report to the Board:

- (1) Lead from piping, solder, caulking, interior lining of distribution mains, alloys and home plumbing.
- (2) Copper from piping and alloys, service lines, and home plumbing.
- (3) Galvanized piping, service lines, and home plumbing.
- (4) Ferrous piping materials such as cast iron and steel.
- (5) Asbestos cement pipe.

(Effective May 26, 1996)

**2401-51-36 Prohibition on Use of
Lead Pipes,
Solder and Flux**

(A) It is prohibited to use, after June 19, 1986, any pipe, solder, or flux that is not lead-free, as that term is defined in Section 2401-51-03, in the installation or repair of:

- (1) Any public water system, or
- (2) Any plumbing in a residential or nonresidential facility providing water for human consumption which is connected to a public water system. This prohibition shall not apply to leaded joints necessary for the repair of cast iron pipes.

(B) Each public water system shall identify and provide notice to persons that may be affected by lead contamination of their drinking water where such

contamination results from either or both of the following:

(1) The lead content in the construction materials of the public water distribution system,

(2) Corrosivity of the water supply sufficient to cause leaching of lead. Notice shall be provided notwithstanding the absence of a violation of any national drinking water standard. The manner and form of notice are specified in Section 2401-51-48.

(C) The requirements of this Section shall become effective June 19, 1988, and shall be enforced through plumbing codes, or such other means of enforcement as the Board may determine to be appropriate.

(Effective May 26, 1996)

**2401-51-37 Use of Point of Entry
Treatment Devices**

(A) Public water systems may use point-of-entry devices to comply with maximum contaminant levels only if they meet the requirements of this Section.

(B) It is the responsibility of the public water system to operate and maintain the point-of-entry treatment system.

(C) The public water system must develop and obtain the approval of the Board for a monitoring plan before point-of-entry devices are installed for compliance. Under the approved plan, point-of-entry devices must provide health protection equivalent to central water treatment. "Equivalent" means that the water would meet all national primary drinking water regulations and would be of acceptable quality similar to water distributed by a well-operated central treatment plant. In addition to the VOCs, monitoring must include physical measurements and observations such as total flow treated and mechanical condition of the treatment equipment.

(D) Effective technology must be properly applied under a plan approved by the Board and the microbiological safety of the water must be maintained.

(E) The Board must require adequate certification of performance, field testing, and, if not included in the certification process, a rigorous engineering design review of the point-of-entry devices.

(F) The design and application of the point-of-entry devices must consider the tendency for increases in heterotrophic bacteria concentrations in water treated with activated carbon. It may be necessary to use frequent backwashing, post-contact disinfection, and Heterotrophic Plate Count monitoring to ensure that the microbiological safety of the water is not compromised.

(G) All consumers shall be protected. Every building connected to the system must have a point-of-entry device installed, maintained and adequately monitored. The Board must be assured that every building is subject to treatment and monitoring, and that the rights and responsibilities of the public water

system customer convey with title upon sale of property.

(Effective May 26, 1996)

2401-51-38 Use of Other Non-Centralized Treatment Devices

Public water systems shall not use bottled water or point-of-use devices to achieve compliance with an MCL. Bottled water or point-of-use devices may be used on a temporary basis to avoid an unreasonable risk to health.

(Effective May 26, 1996)

OPERATORS CERTIFICATION AND REPORTING

2401-51-40 Operators Certification

Two years after the establishment of a training and certification program, each public water supply system shall be under the technical supervision of a certified operator, certification to be granted by the Board or by another agency recognized by the Board.

(Effective May 26, 1996)

2401-51-41 Reporting Requirements

(A) Except where a shorter period is specified in this part, the supplier of water must report to the Board the results of any test, measurement or analysis required by this part within:

(1) The first ten (10) days following the month in which the result is received, or

(2) The first ten (10) days following the end of the required monitoring period as stipulated by the Board, whichever of these is the shortest.

(B) Except where a different reporting period is specified in this part, the supplier of water must report to the Board within forty-eight (48) hours the failure to comply with any MCL drinking water standard (including failure to comply with monitoring requirements) set forth in this part.

(C) The water supply system, within ten (10) days of completion of each public notification required pursuant to Sections 2401-51-42 through 2401-51-51, shall submit to the Board a representative copy of each type of notice distributed, published, posted, and/or made available to the persons served by the system and/or to the media.

(D) The water supply system shall submit to the Board within the time stated in the request copies of any records required to be maintained under Section 2401-51-52 hereof or copies of any documents then in existence which the Board is entitled to inspect pursuant to its statutory and regulatory authorities.

(E) The water supply system required to comply with the disinfection and filtration requirements of Sections 2401-51-75 through 2401-51-82, must also comply

with reporting requirements as specified in Sections 2401-51-83 and 2401-51-84.

(F) The National Primary Drinking Water Regulations, as set forth in the July 1, 1993 edition of 40 CFR Section 141.90 are hereby adopted by reference.

(G) In the event of any conflict between the National Primary Drinking Water Regulations adopted by reference in the preceding Division and existing Republic of Palau Environmental Quality Protection Board Water Supply System Regulations, the more stringent standard or requirement shall be applied.

(Effective May 26, 1996)

PUBLIC NOTIFICATION AND RECORD KEEPING

2401-51-42 Public Notice For Maximum Contaminant Level, Treatment Technique, and Variance and Exemption Schedule Violations

(A) For any maximum contaminant level or treatment violation technique that does not pose an acute risk to human health, except as provided for in Division (D) of this Section, notice shall be:

(1) By publication in a daily newspaper of general circulation in the areas served by the system as soon as possible, but in no case later than fourteen (14) days after the violation or failure. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall instead be given by publication in a weekly newspaper of general circulation serving the area. If the area served by a public water system is not served by a weekly newspaper of general circulation, notice shall instead be given by a public service announcement on the principal radio station serving the area to be broadcast a minimum of four times a day for five (5) consecutive days; and

(2) By mail delivery (by direct mail, or with the water bill), or by hand delivery not later than forty-five (45) days after the violation or failure. The Board may waive mail or hand delivery if it determines that the owner or operator of the public water system in violation has corrected the violation within the forty-five (45) day period. The Board must make the waiver in writing and within the forty-five (45) day period.

(B) For any maximum contaminant level or treatment violation technique that may pose an acute risk to human health, except as provided for in Division (D) of this Section, notice shall be made by furnishing a copy of the notice to the principal radio and television stations serving the area served by the public water system as soon as possible but in no case later than seventy-two (72) hours after the violation. The following violations are acute violations:

(1) Any violations specified by the Board as posing an acute risk to human health.

(2) Violation of the MCL for nitrate as defined in Section 2401-51-22.

(3) Violation of the MCL for total coliforms, when fecal coliforms or E. Coli are present in the water distribution system as specified in Section 2401-51-12(B).

(4) Occurrence of a waterborne disease outbreak, as defined in Section 2401-51-03, in an unfiltered system subject to the requirements of Sections 2401-51-75 through 2401-51-84.

(C) Except as provided in Divisions (D) and (E) of this Section, following the initial notice given under Division (A) of this Section, the owner or operator of the public water system shall furnish notice, at least once every three (3) months by mail delivery (by direct mail or with the water bill) or by hand delivery for as long as the violation or failure exists.

(D) In lieu of the requirements of Divisions (A) and (B) of this Section, the owner or operator of a community water system in the area that is not served by a daily or weekly newspaper of general circulation or a television or radio station, must give notice by hand delivery or by continuous posting in conspicuous places within the area served by the system. Notice by hand delivery or posting must begin as soon as possible, but no later than seventy-two (72) hours after the violation or failure for acute violations, or fourteen (14) days after the violation or failure for any other violation. Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three (3) months for as long as the violation or failure exists.

(E) In lieu of the requirements of Divisions (A) and (B) of this Section, the owner or operator of a non-community water system may give notice by hand delivery or by continuous posting in conspicuous places within the area served by the system. Notice by hand delivery or posting must begin as soon as possible, but no later than seventy-two (72) hours after the violation or failure for acute violations, or fourteen (14) days after the violation or failure for any other violation. Posting must continue for as long as the violation or failure exists. Notice by hand delivery must be repeated at least every three (3) months for as long as the violation or failure exists.

(F) The owner or operator may give notice to only a portion of the population served if it can clearly demonstrate that only a segment of the water system is affected by the problem which results in the need for public notice.

(Effective May 26, 1996)

**2401-51-43 Public Notice for Other
Violations, Variances,
Exemption**

The owner or operator of a public water system shall notify persons served by the system whenever the system fails to comply with any of the monitoring and analytical requirements pursuant to Sections 2401-51-11 through 2401-51-39 of these Regulations; or is granted a variance, exemption or exclusion; or is subject to a compliance agreement, or enforcement

action, relating to an applicable maximum contaminant level; or fails to comply with the requirements of any schedule prescribed in any such document. Such notice shall be given as follows:

(A) Except as provided in Divisions (C) and (D) of this Section, the owner or operator of a public water system must give notice within three (3) months after the sampling violation or the granting of a variance, exemption, exclusion; or the imposition of a compliance agreement or enforcement action; or violating the requirements thereof, by publication in a daily newspaper of general circulation in the area served by the system. If the area served by the public water system is not served by a daily newspaper of general circulation, notice shall instead be given by publication in a weekly newspaper of general circulation serving the area. If the area served by the public water system is not served by a newspaper of weekly publication, notice shall instead be given by a public service announcement on the principal radio station serving the area a minimum of four times a day for five consecutive days.

(B) Except as provided by Divisions (C) and (D) of this Section, following the initial notice given under Division (A) of this Section, the owner or operator of a public water system shall furnish notice at least once every three (3) months by direct mail, or by hand delivery, for as long as the condition for which the initial notice was given exists. Repeat notice of the existence of a variance or exemption must be given every three (3) months for as long as the variance or exemption remains in effect.

(D) In lieu of the requirements of Divisions (A) and (B) of this Section the owner or operator of a non-community water system may give notice, within three (3) months of the violation or the granting of the variance or exemption, by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting must continue for as long as the violation exists, or a variance or exemption remains in effect. Notice by hand delivery must be repeated every three (3) months for as long as the violation exists or a variance or exemption remains in effect. Repeat notice of the existence of a variance or exemption must be given every three (3) months for as long as the variance or exemption remains in effect.

(Effective May 26, 1996)

**2401-51-44 Public Notice To New
Billing Units**

The owner or operator of a community water system must give a copy of the most recent public notice for any outstanding violation of any maximum contaminant level, or treatment technique requirement, or any variance or exemption schedule to all new billing units or hookups prior to or at the time service begins.

(Effective May 26, 1996)

2401-51-45 **Content of the
Public Notice**

- (A) Each notice shall be bi-lingual, written and/or spoken in both Palauan and English.
- (B) Each notice shall provide a clear and readily understandable explanation of the violation, any potential adverse health effects, the population at risk, the steps that the public water supply system is taking to correct such violation, the necessity for using alternative water supplies, if any, and any preventative measures the consumer should take to minimize exposure until the violation is corrected.
- (C) Each notice shall be conspicuous and shall not contain any unduly technical language, unduly small print, or other problems that frustrate the purpose of such notice.
- (D) Each notice shall include the telephone number of the owner or operator, or designee of the public water system as a source of additional information concerning the notice.

(Effective May 26, 1996)

2401-51-46 **Mandatory Health
Effects Information**

When providing the information on potential adverse health effects required by Section 2401-51-45 in notices of violations of maximum contaminant levels or treatment technique requirements, or notices of the granting of the continued existence of exemptions or variances, or notices of failure to comply with a variance or exemption schedule, the owner or operator of a public water supply system shall include the language specified by the EPA for each of the contaminants listed in Sections 2401-51-11 through 2401-51-39. The Board hereby adopts and incorporates by reference EPA's mandatory health effects language, 40 CFR 141.32(e)(1-14).

(Effective May 26, 1996)

2401-51-47 **Specific Public Notice
Requirements for
Fluoride**

- (A) The supplier of water for community and non-transient, non-community water systems that exceed 2.0.mg/l for fluoride as determined by the last single sample taken in accordance with the requirements of Sections 2401-51-22 and 2401-51-23 of these Regulations but do not exceed the MCL for fluoride as specified by Sections 2401-51-22 and 2401-51-23 of these Regulations, shall give public notice to all billing units annually and all new billing units at the time service begins.
- (B) The public notice for fluoride shall contain language adopted by the Board. The language specified by EPA in 40 CFR Section 143.5(b), is hereby adopted by the Board.

(Effective May 26, 1996)

2401-51-48 **Specific Public Notice
Requirements for Lead**

- (A) The owner or operator each community water system and each non-transient, non-community water system shall issue notice to persons served by the system that may be affected by lead contamination of their drinking water. The Board may require subsequent notices. The owner or operator shall provide notice under this Section even if there is no maximum contaminant level violation for lead.
- (B) Notice is not required to be given under Division (A) of this Section if the system demonstrates to the Board that the water system, including the residential and non-residential portions connected to the water system, are lead free. For the purposes of this Paragraph, the term "lead free" when used with respect to solders and flux refers to solders and flux containing not more than 0.2 percent lead, and when used with respect to pipes and pipe fittings refers to pipes and pipe fittings containing not more than 8.0 percent lead.
- (C) Notice shall be given to persons served by the system either by:
 - (1) Three (3) newspaper notices, one in each of three (3) consecutive months, or
 - (2) A public service announcement on the principal radio station serving the area four times a day once a month for three consecutive months, or
 - (3) Once by mail notice with the water bill or in a separate mailing, or
 - (4) Once by hand delivery.
- (D) For non-transient, non-community water systems, notice may be given by continuous posting. If posting is used, the notice shall be posted in a conspicuous place in the area served by the system and continue for three (3) months.
- (E) Content of Notice
 - (1) Each notice shall be bi-lingual, written in both Palauan and English. Each notice shall provide a clear and readily understandable explanation of the potential sources of lead in drinking water, potential adverse health effects, reasonably available methods the user may employ to minimize exposure to lead in the drinking water, any steps the water system is taking to mitigate lead content in drinking water, and the necessity for using alternative water supplies, if any.
 - (2) Each notice shall also include specific advice on how to determine if materials containing lead have been used in homes and how to minimize exposure to water likely to contain high levels of lead. Each notice shall be conspicuous and shall not contain unduly technical language, small print, or similar problems that frustrate the purpose of the notice. Each notice shall contain the telephone number of the owner, operator, or designee of the public water system as a source of additional information regarding the notice.
 - (3) Each notice shall contain language adopted by the Board. The language of 40 CFR Section 141.34(d) is adopted by the Board.

(F) Mandatory Health Effects Information. When providing the information in public notices required under this Section on the potential adverse health effects of lead in drinking water, the owner or operator of the water system shall include language adopted by the Board. The language specified in 40 CFR Section 141.34(d) is hereby adopted by the Board.

(Effective May 26, 1996)

2401-51-49 Submission of Notices

A copy of all notices must be submitted within ten (10) days to the Board as verification of notification.

(Effective May 26, 1996)

2401-51-50 Failure to Notify

The Board may give any notice to the public required under Sections 2401-51-41 through 2401-51-51, on behalf of the owner or operator of the public water system if the Board complies with the requirements of this Section. However, the owner or operator of the public water system remains legally responsible for ensuring that the requirements of this Section are met.

(Effective May 26, 1996)

2401-51-51 Additional Public Notice Requirements

(A) The National Primary Drinking Water Regulations, as set forth in the July 1, 1993 edition of 40 CFR Sections 141.32 and 141.85 are hereby adopted by reference.

(B) In the event of any conflict between the National Primary Drinking Water Regulations adopted by reference in Division (A) of this Section and existing Republic of Palau Environmental Quality Protection Board Water Supply System Regulations, the more stringent standard or requirement shall be applied.

(Effective May 26, 1996)

2401-51-52 Records Maintenance

The owner or operator of a public water supply system shall retain on its premises or at a convenient location near its premises the following records:

(A) Records of bacteriological analyses shall be kept for at least five (5) years. Records of chemical and radionuclide analyses shall be kept for at least ten (10) years. Record information shall include the following:

- (1) The date, place, and time of sampling, and the name of the person who collected the sample;
- (2) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample;
- (3) Date of analysis;

(4) Laboratory and person responsible for performing analysis;

(5) The analytical technique/method used; and

(6) The results of the analysis.

(B) Records of action taken by the system to correct violations of these regulations shall be kept for at least five (5) years after the last action taken with respect to the particular violation involved.

(C) Copies of any written reports, summaries or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any National Government or United States Federal agency, shall be kept for a period not less than ten (10) years after completion of the sanitary survey involved.

(D) Records concerning a variance or exemption granted to the system shall be kept for a period ending not less than five (5) years following the expiration of such a variance or exemption.

(F) In the event of any conflict between the National Primary Drinking Water Regulations adopted by reference in the preceding Paragraph and existing Republic of Palau Environmental Quality Protection Board Water Supply System Regulations, the more stringent standard or requirement shall be applied.

(Effective May 26, 1996)

2401-51-53 Right of Entry

In addition to any other right of entry authority provided by law, the Board and its authorized representatives may, at any time, inspect public water supply systems, take water samples, and perform tests in water quality, whether or not the Board has evidence that the system is in violation of any applicable legal requirement.

(Effective May 26, 1996)

WATER SUPPLY DURING EMERGENCIES

2401-51-54 Emergency Permits

Whenever emergencies affecting the safety or adequacy of a public water supply system requires modifications or additions thereto, the Board shall be notified. The Board may issue emergency construction permits with/or containing special conditions as deemed necessary for the proper safeguarding of the health of the water consumers. Plans and specifications covering the work as constructed under the emergency permit shall be submitted to the Board as soon as reasonably possible, but in no case later than two (2) weeks after the construction work has been done. Modifications required by the Board after review of the submission shall be made promptly.

(Effective May 26, 1996)

2401-51-55 Emergency Situations

(A) Toxics Contamination. Non-potability by reason of the presence of toxic or other contaminating substances in the supply which cannot be removed by existing treatment methods and which, if ingested, might be injurious to the health of consumer. Presence of such substances might be identified by such parameters as odor, taste, color, chemical tests, the presence of extensive fish kills in the water source, or by other evidence. In case of such an emergency the supplier of water shall:

(1) Deliver disinfected water from other suitable sources to such public consumers as hospitals and similar institutions. The water so delivered shall be disinfected to the satisfaction of the Board.

(2) Take appropriate steps under the supervision of the Board to properly identify the nature and source of the contaminant.

(3) Advise individual consumers to find other emergency sources of water until notified by the Board that the public water supply system is potable.

(4) Advise individual consumers to disinfect their emergency water supply by either boiling at a rolling boil for one (1) minute or more, or adding one (1) teaspoon of 5% (five percent) sodium hypochlorite solution (bleach, such as Clorox) to five (5) gallons of clear odorless water, stir and letting it stand thirty (30) minutes before using, or as may be prescribed by the Board. In this event, the Board shall supervise the supplier's operations, and document circumstances surrounding the contamination, including its cause and identification of any person(s) implicated in such contamination.

(B) Mechanical Failure and/or Natural Disaster. Non-potability by reason of the inactivation of the system due to major mechanical failure, typhoon, earthquake or similar disaster: In this case, the supplier will notify the Board and the water consumers by the quickest available means of communication. The supplier will also:

(1) Deliver disinfected water from suitable sources to such public consumers as hospitals and similar institutions. The water so delivered shall be disinfected to the satisfaction of the Board.

(2) Advise consumers as to where potable water from the plant or system may be obtained if such is obtainable.

(C) Rationing of Water. If potable water is not available from the system, the supplier will advise the consumers by the fastest available means where other water sources may be found in the immediate vicinity. The supplier shall advise individual consumers to disinfect their emergency water supply by either boiling at a rolling boil for one (1) minute or more, or adding one (1) teaspoon of 5% (five percent) sodium hypochlorite solution (bleach, such as Clorox) or 5% (five percent) calcium hypochlorite to five (5) gallons of clear odorless water, stir and let it stand thirty (30) minutes before using, or as may be prescribed by the Board. The supplier shall keep on hand sufficient disinfectant (sodium or calcium hypochlorite) for use by consumers who may not have access to such disinfectants during the emergency.

(D) The Board shall supervise the operations of the supplier.

(Effective May 26, 1996)

VARIANCES

2401-51-56 Variances Authorized

The Board may grant variances from the requirements of the water supply systems regulations under the conditions and in a manner which are not less stringent than those which may be granted under Sections 1415 and 1416 of the federal Act, except that variances from the MCL for total coliforms and variances from any of the treatment technique requirements may not be granted.

(Effective May 26, 1996)

2401-51-57 Requirements for a Variance

(A) The Board may grant one or more variance to any public water system within the Republic of Palau from any requirement respecting a maximum contaminant level prescribed in these regulations upon a finding that:

(1) Because of characteristics of the raw water sources which are reasonably available to the system, the system cannot meet the requirements respecting the maximum contaminant levels of such drinking water regulations despite application of the best technology, treatment techniques, or other methods which the Board finds are generally available (taking cost into consideration); and,

(2) The granting of a variance will not result in an unreasonable risk to the health of persons served by the system.

(B) The Board may grant one or more variances to any public water supply system within the Republic of Palau from any requirement of a specified treatment technique of an applicable drinking water regulation upon a finding that the public water system applying for the variance has demonstrated that such treatment technique is not necessary to protect the health of persons because of the nature of the raw water source of such system.

(Effective May 26, 1996)

2401-51-58 Variance Request

A supplier of water may request the granting of a variance by submitting such a request in writing to the Board. Suppliers of water may submit a joint request for variances when they seek similar variances under similar circumstances. A variance request shall include:

(B) Relevant analytical results of water quality sampling of the system, including results of relevant tests conducted pursuant to the requirements of these regulations; and

(C) For any request made under Division (A) of Section 2401-51-57:

- (1) Explanation in full and evidence of the best available treatment technology and techniques.
 - (2) Economic and legal factors relevant to ability to comply.
 - (3) Analytical results of raw water quality relevant to the variance request.
 - (4) A proposed compliance schedule, including the date each step toward compliance will be achieved. Such schedule shall include as a minimum the following dates:
 - (a) Date by which arrangement for alternative raw source or improvement of existing raw water source will be completed;
 - (b) Date of initiation of the connection of the alternative raw water source or improvement of existing raw water source; and
 - (c) Date by which final compliance is to be achieved.
 - (5) A plan for the provision of safe drinking water in the case of an excessive rise in the contaminant level for which the variance is requested.
 - (6) A plan for interim control measures during the effective period of variance.
- (E) Other information, if any, believed to be pertinent by the applicant.
- (F) Such other information as the Board may require.

(Effective May 26, 1996)

**2401-51-59 Consideration of
Variance Request**

- (A) The Board shall act on any variance request submitted pursuant to Section 2401-51-58 within ninety (90) days of receipt of the request.
- (B) In its consideration of whether the public water system is unable to comply with a contaminant level required by these regulations because of the nature of the raw water source, the Board shall consider such factors as the following:
- (1) The availability and effectiveness of treatment methods for the contaminant which the variance is requested.
 - (2) Cost and other economic considerations such as implementing treatment to improve the quality of the source water or using an alternate source.
- (C) In its consideration of whether a public water system should be granted a variance to a required treatment technique because such treatment is unnecessary to protect the public health, the Board shall consider such factors as the following:
- (1) Quality of the water source including water quality data and pertinent sources of pollution.
 - (2) Source protection measures employed by the public water system.

(Effective May 26, 1996)

**2401-51-60 Disposition of a Variance
Request**

- (A) If the Board decides to deny the application for a variance, it shall notify the applicant of its intention to issue a denial. Such notice shall include a statement of reasons for the proposed denial, and shall offer the applicant an opportunity to present, within thirty (30) days of receipt of the notice, additional information or argument to the Board. The Board shall make a final determination on the request within thirty (30) days after receiving any additional information or argument. If no additional information or argument is submitted by the applicant, the application shall be denied.
- (B) If the Board proposes to grant a variance request submitted pursuant to Section 2401-51-58, it shall notify the applicant of its decision in writing. Such notice shall identify the variance, the facility covered, and shall specify the period of time for which the variance will be effective.
- (1) For the type of variance specified in 2401-51-57(A), such notice shall provide that the variance will be terminated when the system comes into compliance with the applicable regulation, and may be terminated upon finding by the Board that the system has failed to comply with any requirements of a final schedule pursuant to the terms and conditions of the variance.
- (2) For the type of variance specified in 2401-51-57(B), such notice shall provide that the variance may be terminated at any time upon finding that the nature of the raw water is such that the specified treatment technique for which the variance was granted is necessary to protect the health of persons or upon a finding that the public water system has failed to comply with monitoring and other requirements prescribed by the Board as a condition of the granting of the variance.
- (C) For a variance specified in 2401-51-57(A)(1), the Board shall propose a schedule for:
- (1) Compliance (including increments of progress) by the public water system with each contaminant level requirement covered by the variance; and,
 - (2) Implementation by the public water system of such control measures as the Board may require for each contaminant covered by the variance.
- (D) The proposed schedule for compliance shall specify dates by which steps towards compliance are to be taken, including at the minimum, where applicable:
- (1) Date by which arrangement for an alternative raw water source or improvements of existing raw water source will be completed;
 - (2) Date of initiation of the connection for the alternative raw water source or improvement of the existing raw water source; and,
 - (3) Date by which final compliance is to be achieved.
- (E) The proposed schedule may, if the public water system has no access to an alternative raw water source and can effect or anticipate no adequate improvement of the existing raw water source, specify an indefinite time period for compliance until a new and effective treatment technology is developed at which time a new compliance schedule shall be prescribed by the Board.

(F) The proposed schedule for implementation control measures during the period of variance shall specify interim treatment techniques, methods and equipment, and dates by which steps towards meeting the interim control measures are to be met.

(G) The schedule shall be prescribed by the Board at the time the variance is granted, subsequent to provision of opportunity for hearing pursuant to Section 2401-51-61.

2401-51-61 Public Hearing on Variance

(A) Before a variance or a schedule pursuant to Section 2401-51-60 may take effect, the Board shall provide notice and opportunity for public hearing on the variance or schedule. A notice given pursuant to the preceding sentence may cover more than one (1) such variance or schedule and a hearing held pursuant to such notice shall include each of the variances covered by the notice.

(B) Public notice of a proposed variance or schedule and opportunity for public hearing on such shall be circulated in a manner designed to inform interested and potentially interested persons of the proposed variance. The public notice shall be posted at the principal post office which serves the area of the public water supply system and shall be announced over the radio or television station serving the area of the public water supply system. All public notices shall be bi-lingual in both Palauan and English. Requests for hearing may be submitted by any interested person. Frivolous and/or insubstantial requests for hearing may be denied by the Executive Officer of the Board. Requests must be submitted to the Board within twenty (20) days after issuance of the public notice mentioned above. Hearing requests shall include the following information:

(1) The name, address and telephone number of the individual, organization or other entity requesting hearing;

(2) A brief statement of the interest of the person making the request in the proposed variance or schedule and information that the requesting person intends to submit at such hearing; and,

(3) The signature of the individual making the request, or, if the request is made on behalf of an organization or other entity, the signature of a responsible official of the organization or other entity.

(C) The Executive Officer of the Board shall give notice in the manner set forth in Division (B) of this Section of any hearing to be held pursuant to a request by an interested person or on the Board's motion. Notice of the hearing shall also be sent to the person requesting the hearing, if any. Notice of the hearing shall include a statement of the purpose, information regarding the time and location for the hearing, and the address and telephone number of an office at which interested persons may obtain further information concerning the hearing. The hearing location specified in the public notice shall be within an involved state or hamlet. Notice of the hearing

shall be given not less than fifteen (15) days prior to the time scheduled for the hearing.

(D) A hearing conducted pursuant to Division (C) of this Section shall be conducted before the Board. The Board shall have the authority to call witnesses, receive written and oral testimony, compel necessary attendance through subpoena, and take such action as may be necessary to assure the fair and efficient conduct of the hearing.

(Effective May 26, 1996)

2401-51-62 Final Action on Variance

Within thirty (30) days after termination of the public hearing process described above, the Board shall, taking into consideration information obtained during the hearing and other relevant information, grant, deny, or grant as modified a proposed variance or schedule.

(Effective May 26, 1996)

2401-51-63 Alternative Treatment Techniques

The Board may grant a variance from any treatment technique requirement of these regulations to a supplier of water, upon a showing from any person that an alternative treatment technique not included in said requirement is at least as efficient in lowering the level of the contaminant with respect to said requirement which was prescribed. A variance under this Section shall be conditioned on the effective use of the alternative treatment technique which is the basis of the variance.

(Effective May 26, 1996)

2401-51-64 Variances from the Maximum Contaminant Level for Fluoride and the Maximum Contaminant Levels for Organic Chemicals

The Board hereby adopts and incorporates by reference the identified best technology, treatment techniques, or other means available for achieving compliance with maximum contaminant levels for fluoride (40 CFR 142.61) and synthetic organic chemicals (40 CFR 142.62).

(Effective May 26, 1996)

EXEMPTIONS

2401-51-65 Exemptions Authorized

The Board may grant exemptions from the requirements of the water supply systems regulations under the conditions and in a manner which is not less stringent than those which may be granted under

Sections 1415 and 1416 of the federal Act, except that exemptions from the MCL for total coliforms and exemptions from any of the treatment technique requirements may not be granted.

(Effective May 26, 1996)

2401-51-66 Requirements for an Exemption

The Board may exempt any public water system from any requirement respecting a maximum contaminant level or any treatment technique requirement, or from both, of an applicable water supply systems regulation upon a finding that:

- (A) Due to compelling factors (which may include economic factors) the public water system is unable to comply with such contaminant level or treatment technique requirement;
- (B) The public water system was in operation on the effective date of such contamination level or treatment technique requirement; and,
- (C) The granting of the exemption will not result in an unreasonable risk to health.

(Effective May 26, 1996)

2401-51-67 Exemption Request

A supplier of water may request the granting of an exemption pursuant to this Section for a public water system by submitting a request for exemption in writing to the Board. Suppliers of water may submit a joint request for exemptions when they seek similar exemptions under similar circumstances. Any written request for an exemption shall include the following information:

- (A) The nature and duration of the exemption requested;
- (B) Relevant analytical results of water quality sampling of the system, including results of relevant tests conducted pursuant to the requirements of these regulations;
- (C) Explanation of the compelling factors such as time or economic factors which prevent such system from achieving compliance;
- (D) Other information, if any, believed by the applicant to be pertinent to the application;
- (E) A proposed compliance schedule, including the date when each step toward compliance will be achieved; or,
- (F) Such other information that the Board may require.

(Effective May 26, 1996)

2401-51-68 Consideration of an Exemption Request

(A) The Board shall act on any exemption request submitted pursuant to Section 2401-51-67 within ninety (90) days of receipt of the request.

- (B) In its consideration of whether the public water system is unable to comply due to compelling factors, the Board shall consider such factors as the following:
 - (1) Construction, installation, or modification of treatment equipment or systems;
 - (2) The time needed to put into operation a new treatment facility to replace an existing system which is not in compliance; and
 - (3) Economic feasibility of compliance.

(Effective May 26, 1996)

2401-51-69 Deposition of an Exemption Request

(A) If the Board decides to deny the application for an exemption, it shall notify the applicant of its intention to issue a denial. Such notice shall offer the applicant an opportunity to present, within thirty (30) days after receiving such notice, additional information or argument. If no additional information or argument is submitted by the applicant, the application shall be denied.

(B) If the Board grants an exemption request, it shall notify the applicant of its decision in writing. Such notice shall identify the facility covered, and shall specify the termination date of the exemption. Such notice shall provide that the exemption will be terminated when the system comes into compliance with the applicable regulation, and may be terminated upon finding by the Board that the system has failed to comply with any requirements of a final schedule issued pursuant to Section 2401-51-72.

(C) The Board shall propose a schedule for:

(1) Compliance (including increments of progress) by the public water system with each contaminant level requirement and treatment requirement covered by the exemption.

(2) Implementation by the public water system of such control measures as the Board may require for each contaminant covered by the exemption.

(D) The schedule shall be prescribed by the Board within one (1) year after the granting of the exemption, subsequent to provision of opportunity for hearing pursuant to Section 2401-51-70.

(Effective May 26, 1996)

2401-51-70 Public Hearing on Exemption

(A) Before a schedule proposed by the Board pursuant to 2401-51-69(D) may take effect, the Board shall provide notice and opportunity for public hearing on the schedule. A notice given pursuant to the proceeding sentence may cover the proposal of more than one such schedule and a hearing held pursuant to such notice shall include each of the schedules covered by the notice.

(B) Public notice of a proposed exemption or schedule and opportunity for public hearing on such shall be circulated in a manner designed to inform

interested and potentially interested persons of the proposed variance. The public notice shall be posted at the principal post office which serves the area of the public water supply system and shall be announced over the radio or television station serving the area of the public water supply system. All public notices shall be bi-lingual in both Palauan and English. Requests for hearing may be submitted by any interested person. Frivolous and/or insubstantial requests for hearing may be denied by the Executive Officer of the Board. Requests must be submitted to the Board within twenty (20) days after issuance of the public notice mentioned above. Hearing requests shall include the following information:

(1) The name, address and telephone number of the individual, organization or other entity requesting hearing;

(2) A brief statement of the interest of the person making the request in the proposed exemption or schedule and information that the requesting person intends to submit at such hearing; and,

(3) The signature of the individual making the request, or, if the request is made on behalf of an organization or other entity, the signature of a responsible official of the organization or other entity.

(C) The Executive Officer of the Board shall give notice in the manner set forth in Division (B) of this Section of any hearing to be held pursuant to a request by an interested person or on the Board's motion. Notice of the hearing shall also be sent to the person requesting the hearing, if any. Notice of the hearing shall include a statement of the purpose, information regarding the time and location for the hearing, and the address and telephone number of an office at which interested persons may obtain further information concerning the hearing. The hearing location specified in the public notice shall be within an involved state or hamlet. Notice of the hearing shall be given not less than five (5) days prior to the time scheduled for the hearing.

(D) A hearing conducted pursuant to Division (C) of this Section shall be conducted before the Board. The Board shall have the authority to call witnesses, receive written and oral testimony, compel necessary attendance through subpoena, and take such action as may be necessary to assure the fair and efficient conduct of the hearing.

(Effective May 26, 1996)

2401-51-71 Final Action

Within thirty (30) days after termination of the public hearing process described above, the Board shall, taking into consideration information obtained during the hearing and other relevant information, grant, deny, or grant as modified a proposed exemption or schedule.

(Effective May 26, 1996)

2401-51-72 Exemptions from the Maximum Contaminant Level for Fluoride and the Maximum Contaminant Levels for Organic Chemicals

The Board hereby adopts and incorporates by reference the identified best technology, treatment techniques, or other means available for achieving compliance with maximum contaminant levels for fluoride (40 CFR 142.61) and synthetic organic chemicals (40 CFR 142.62).

(Effective May 26, 1996)

PROVISION OF ADEQUATE WATER SUPPLY BY PRIVATE DEVELOPERS

2401-51-73 Provision of Adequate Water Supply Required

The provision of an adequate water supply to the public shall be ensured by private developers. All private developments which must serve an average of twenty-five (25) individuals daily with water shall be required to assist the supplier of water to the public in the development of additional water supplies or with other improvements as may be necessary due to the increased demand on the public system from the development project. This assistance may be through direct financing of water improvement projects, provision of a private water supply system for the project, or by other means acceptable to the governing agency and the Board.

(Effective May 26, 1996)

2401-51-74 Failure to Provide for Adequate Water Supply

The Board shall not issue any permits for projects which will serve an average of twenty- five (25) individuals daily with water or otherwise reduce the supply or quality of water to the region in which the project is located until the adequate provision of water is ensured.

(Effective May 26, 1996)

FILTRATION AND DISINFECTION

2401-51-75 General Requirements

(A) These regulations establish criteria under which filtration is required as a treatment technique for public water systems supplied by a surface water source and public water systems supplied by a ground water source under the direct influence of surface water. In addition these regulations establish treatment techniques requirements in lieu of maximum contaminant levels for the following contaminants: Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, and turbidity. Each

public water system with a surface water source or a ground water source under the direct influence of surface water must provide treatment of that source water that complies with these treatment techniques requirements. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(1) At least 99.9 percent (3-log) removal and/or inactivation of *Giardia lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer; and

(2) At least 99.99 percent (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

(B) A public water system using a surface water source or a ground water source under the direct influence of surface water is considered to be in compliance with the requirements of Division (A) of this Section if it meets the filtration requirements in Sections 2401-51-77 through 2401-51-81 and the disinfection requirements in Section 2401-51-76.

(C) Each public water system using a surface water source or a ground water source under the direct influence of surface water must be operated by qualified personnel who meet the requirements specified by Section 2401-51-40 and other such requirements as specified by the Board.

(D) The Board hereby adopts and incorporates by reference the "Guidance Manual for Compliance with the Surface Water Treatment Rule," March 1991 or more recent edition, which provides guidance and information to assist public water supplies in complying with applicable requirements under this Section.

(Effective May 26, 1996)

2401-51-76 Disinfection

(A) A public water system that uses a surface water source or a ground water source under the direct influence of surface water, and that provides filtration, must provide disinfection treatment as specified in this Section beginning June 29, 1993, or beginning when filtration is installed, whichever is later. Failure to meet any requirement of this Section after the applicable date(s) specified in this Division is a treatment technique violation.

(B) If filtration treatment is required by Sections 2401-51-77 through 2401-51-81 of these regulations or the Board has determined in writing that filtration treatment is required, the public water system must comply with any interim disinfection requirements the Board deems necessary before filtration is installed.

(C) Each public water system which provides filtration treatment must provide the following disinfection treatment:

(1) The disinfection treatment must be sufficient to ensure that the total treatment processes of that

system achieve at least 99.9 percent (3-log) inactivation and/or removal of *Giardia lamblia* cysts and at least 99.99 percent (4-log) inactivation and/or removal of viruses, as determined by the Board.

(2) The residual disinfectant concentration in water entering the distribution system, measured as specified in 2401-51-82(A)(5) and (B)(2), cannot be less than 0.2 mg/l for more than 4 hours.

(3) The residual disinfection concentration in the distribution system, measured as total chlorine, free chlorine, combined chlorine, or chlorine dioxide, as specified in 2401-51-82(A)(5) and (B)(3) cannot be undetectable in more than 5 percent of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as heterotrophic plate count (HPC) as specified in 2401-51-82(A)(3), is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5 percent in one month, for any two consecutive months.

$$V = \frac{c+d+e}{a+b} \times 100$$

where:

- a = number of instances where the residual disinfectant concentration is measured;
b = number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;
c = number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;
d = number of instances where the residual disinfectant concentration is measured but not detected and where the HPC is >500/ml; and

(4) If the Board determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Section 2401-51-82(A)(3) and that the system is providing adequate disinfection in the distribution system, the requirements of Paragraph (A)(3) of this Section do not apply to that system.

(Effective May 26, 1996)

2401-51-77 Filtration

A public water system using a surface water source or a ground water source under the direct influence of surface water must provide treatment consisting of both disinfection, as specified in Section 2401-51-76, and filtration treatment which complies with the requirements of Sections 2401-51-78 through 2401-51-81 by June 29, 1993, unless as otherwise specified in this Paragraph. A public water system that uses a ground water source under the direct influence of surface water must meet the

requirements of this Section beginning 18 months after the Board has determined that it is under the direct influence of surface water or has determined in writing that filtration is required. Failure to meet any requirement of this Section after the date specified in this introductory Paragraph is a treatment technique violation.

(Effective May 26, 1996)

2401-51-78 Conventional Filtration Treatment or Direct Filtration

(A) For systems using conventional filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.5 NTU in at least 95 percent of the measurements taken each month, measured as specified in Section 2401-51-82, except that if the Board determines that the system is capable of achieving at least 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts at some turbidity level higher than 0.5 NTU in at least 95 percent of the measurements taken each month, the Board may substitute this higher turbidity limit for that system. However, in no case may the Board approve a turbidity limit that allows more than 1 NTU in more than 5 percent of the samples taken each month, measured as specified in Section 2401-51-82.

(B) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU, measured as specified in Section 2401-51-82.

(Effective May 26, 1996)

2401-51-79 Slow Sand Filtration

(A) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in Section 2401-51-82, except that if the Board determines there is no significant interference with disinfection at a higher turbidity level, the Board may substitute this higher turbidity limit for that system.

(B) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU, measured as specified in Section 2401-51-82.

(Effective May 26, 1996)

2401-51-80 Diatomaceous Earth Filtration

(A) For systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in Section 2401-51-81.

(B) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU, measured as specified in Section 2401-51-81.

(Effective May 26, 1996)

2401-51-81 Other Filtration Technologies

A public water system may use a filtration technology not listed in Sections 2401-51-78 through 2401-51-80 if it demonstrates to the Board, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of Section 2401-51-76(C), consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses. For a system that makes this demonstration, the requirements of Section 2401-51-79 apply.

(Effective May 26, 1996)

2401-51-82 Analytical and Monitoring Requirements for Disinfection and Filtration

(A) Only the analytical methods(s) specified herein, or otherwise approved by Board, may be used to demonstrate compliance with the requirements of Sections 2401-51-76 through 2401-51-81. Measurements for pH, temperature, turbidity, and residual disinfectant concentrations must be conducted by a party approved by the Board. Measurements for total coliforms, fecal coliforms, and HPC must be conducted by a laboratory certified by the Board or EPA to do such analysis. Until laboratory certification criteria are developed for the analysis of HPC and fecal coliforms, any laboratory certified for total coliform analysis is deemed certified for HPC and fecal coliform analysis. The following procedures shall be performed in accordance with the publications listed.

(1) Fecal coliform concentration. Method 908C (Fecal Coliform MPN Procedures), pp. 878-880. Method 908D (Estimation of Bacterial Density), pp. 880-882, or Method 909C (Fecal Coliform Membrane Filter Procedure), pp. 896-898, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition.

(2) Total coliform concentration. Method 908A (Standard Total Coliform Multiple-Tube (MPN) Tests), pp. 872-876, Method 908B (Application of Tests to Routine Examinations), pp. 876-878, Method 908D (Estimation of Bacterial Density), pp. 880-882, Method 909A (Standard Total Coliform Membrane Filter Procedure), pp. 887-894, or Method 909B (Delayed-Incubation Total Coliform Procedure), pp. 894-896, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition; Minimal Medium ONPG-MUG Test, as set forth in the article "National Field Evaluation of a

Defined Substrate Method for the Simultaneous Enumeration of Total Coliforms and Escherichia coli from Drinking Water: Comparison with the Standard Multiple Tube Fermentation Method" (Edberg et al.), Applied and Environmental Microbiology, Volume 54, pp. 1595-1601, June 1988 (as amended under Erratum, Volume 54, p. 3197, December, 1988).

NOTE: The Minimal Medium ONPG-MUG Test is sometimes referred to as the Autoanalysis Colilert System. Systems may use a five-tube test or a ten-tube test.

(3) Heterotrophic Plate Count. Method 907A (Pour Plate Method), pp. 864-866, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition.

(4) Turbidity. Method 214A (Nephelometric Method-Nephelometric Turbidity Units), pp. 134-136, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition.

(5) Residual disinfectant concentration. Residual disinfectant concentrations for free chlorine and combined chlorine (chloramines) must be measured by Method 498C (Amperometric Titration Method), pp. 303-306, Method 408D (DPD Ferrous Titrimetric Method), pp. 306-309, Method 408E (DPD Colorimetric Method), pp. 309-310, or Method 408F (Leuco Crystal Violet Method), pp. 310-313, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition. Residual disinfectant concentrations for free chlorine and combined chlorine may also be measured by using DPD colorimetric test kits if approved by the State. Residual disinfectant concentrations for ozone must be measured by the Indigo Method as set forth Bader, H., Holgne, J. "Determination of Ozone in Water by the Indigo Method; A Submitted Standard Method"; Ozone Science and Engineering, Vol. 4, pp. 169-176, Pergamon Press Ltd., 1982, or automated methods which are calibrated in reference to the results obtained by the Indigo Method on a regular basis, if approved by the State.

NOTE: This method will be published in the 17th edition of Standard Methods for the Examination of Water and Wastewater, American Public Health Association et al.; the Iodometric Method in the 16th edition may not be used. Residual disinfectant concentration for chlorine dioxide must be measured by Method 410B (Amperometric Method) or Method 410C (DPD Method), pp. 322-324, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition.

(6) Temperature. Method 212 (Temperature), pp. 126-127, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition.

(7) pH. Method 423 (pH Value), pp. 429-437, as set forth in Standard Methods for the Examination of

Water and Wastewater, 1985, American Public Health Association, 16th edition. Copies of the methods published in "Standard Methods for the Examination of Water and Wastewater" may be obtained from the American Public Health Association et al., 1015 Fifteenth Street, NW., Washington, DC 20005; copies of the Minimal Medium ONPG-MUG Method as set forth in the article "National Field Evaluation of a Defined Substrate Method for the Simultaneous Enumeration of Total Coliforms and Escherichia coli from Drinking Water: Comparison with the Standard Multiple Tube Fermentation Method" (Edberg et al.), Applied and Environmental Microbiology, Volume 54, pp. 1595-1601, June 1988 (as amended under Erratum, Applied and Environmental Microbiology, Volume 54, p. 3197, December, 1988), may be obtained from the American Water Works Association Research Foundation, 6666 West Quincy Avenue, Denver, Colorado, 80235; and copies of the Indigo Method as set forth in the article "Determination of Ozone in Water by the Indigo Method" (Bader and Holgne), may be obtained from Ozone Science & Engineering, Pergamon Press Ltd., Fairview Park, Elmsford, New York 10523. Copies may be inspected at the U.S. Environmental Protection Agency, Room EB15, 401 M Street, SW., Washington, DC 20460 or at the Office of the Federal Register, 1100 L Street, NW., Room 8401, Washington, DC.

(B) Monitoring requirements for systems using filtration treatment. A public water system that uses a surface water source or a ground water source under the influence of surface water and provides filtration treatment must monitor in accordance with this Paragraph beginning June 29, 1993, or when filtration is installed, whichever is later.

(1) Turbidity measurements as required by Sections 2401-51-77 through 2401-51-81 must be performed on representative samples of the system's filtered water every four hours (or more frequently) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by the Board. For any systems using slow sand filtration or filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the Board may reduce the sampling frequency to once per day if it determines that less frequent monitoring is sufficient to indicate effective filtration performance. For systems serving 500 or fewer persons, the Board may reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the Board determines that less frequent monitoring is sufficient to indicate effective filtration performance.

(2) The residual disinfectant concentration of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every 4 hours may be conducted in lieu of continuous monitoring, but for no more than 5 working days

following the failure of the equipment, and systems serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies each day prescribed in Table B. If at any time the residual disinfectant concentration falls below 0.2 mg/l in a system using grab sampling in lieu of continuous monitoring, the system must take a grab sample every 4 hours until the residual disinfectant concentration is equal to or greater than 0.2 mg/l.

(3) The residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in Sections 2401-51-11 through 2401-51-15, except that the Board may allow a public water system which uses both a surface water source or a ground water source under direct influence of surface water, and a ground water source to take disinfectant residual samples at points other than the total coliform sampling points if the State determines that such points are more representative of treated (disinfected) water quality within the distribution system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC) as specified in Paragraph (A)(3) of this Section, may be measured in lieu of residual disinfectant concentration.

SYSTEM SIZE BY POPULATION	SAMPLES PER DAY†
<500	1
501 to 1,000	2
1,001 to 2,500	3
2,501 to 3,300	4

†The day's samples cannot be taken at the same time. The sampling intervals are subject to Board review and approval.

(4) If the Board determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Paragraph (A)(3) of this Section and that the system is providing adequate disinfection in the distribution system, the requirements of Paragraph (B)(3) of this Section do not apply to that system.

(Effective May 26, 1996)

2401-51-83 Reporting and Record Keeping Requirements for Filtration and Disinfection: General Requirements

(A) A public water system that uses a surface water source or a ground water source under the direct influence of surface water, for which filtration treatment is required by Sections 2401-51-77 through 2401-51-81 or the Board has determined in writing

that filtration is required, must comply with any reporting requirements specified by the Board until filtration is in place.

(B) A public water system that uses a surface water source or a ground water source under the direct influence of surface water and provides filtration treatment must report monthly to Board the information specified herein, beginning June 29, 1993, or when filtration is installed, whichever is later.

(1) Turbidity measurements as required by 2401-51-82(B) must be reported within 10 days after the end of each calendar month in which the system has, at any time, served water to the public. Information that must be reported includes:

(a) the total number of filtered water turbidity measurements taken during the month.

(b) the number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in Sections 2401-51-77 through 2401-51-81 for the filtration technology being used.

(c) the date and value of any turbidity measurements taken during the month which exceed 5 NTU.

(2) Disinfection information specified in 2401-51-82(B) must be reported to the Board within 10 days after the end of each month the system serves water to the public. Information that must be reported includes:

(a) for each day, the lowest measurement of residual disinfectant concentration in mg/l in water entering the distribution system.

(b) the date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/l and the date and time when the Board was notified of the occurrence.

(c) the following information on the samples taken in the distribution system in conjunction with the total coliform monitoring pursuant to Section 2401-51-76:

(i) number of instances where the residual disinfectant concentration is measured;

(ii) number of instances where the residual disinfectant concentration is not measured, but the heterotrophic plate count (HPC) is measured;

(iii) number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

(iv) number of instances where no residual disinfectant concentration is detected and where HPC is >500/ml;

(v) number of instances where residual disinfectant concentration is not measured and where HPC is >500/ml;

(vi) for the current and previous month in which the system served any water to the public, the value of "V" in the following formula:

$$V = \frac{c+d+e}{a+b} \times 100$$

where:

a = number of instances where the residual disinfectant concentration is measured;

- b = number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;
- c = number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;
- d = number of instances where the residual disinfectant concentration is measured but not detected and where the HPC is >500/ml; and
- e = number of instances where the residual disinfectant concentration is not measured and HPC is >500/ml.

(d) if the Board determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by 2401-51-82(A)(3) and that the system is providing adequate disinfection in the distribution system, the requirements of Paragraph (B)(2)(c) of this Section do not apply.

(e) a system need not report the data listed in Paragraph (B)(2) of this Section if all the data listed in Paragraphs (B)(2) of this Section remain on file at the system and the Board determines that the system has submitted all the information required by Paragraph (B)(2) of this Section for at least 12 months.

(Effective May 26, 1996)

2401-51-84 Reporting and Record Keeping Requirements for Filtration and Disinfection: Immediate Notification Required

(A) Each system, upon discovering that a waterborne disease breakout potentially attributable to that water system has occurred, must report that occurrence to the Board as soon as possible, but no later than by the end of the next business day.

(B) If at any time the turbidity exceeds 5 NTU, the system must inform the Board as soon as possible, but no later than by the end of the next business day.

(C) If at any time the residual disinfectant falls below 0.2 mg/l in the water entering the distribution system, the system must notify the Board as soon as possible, but not later than by the end of the next business day. The system must also notify the Board by the end of the next business day whether or not the residual disinfectant was restored to at least 0.2 mg/l within 4 hours.

(Effective May 26, 1996)

ENFORCEMENT

2401-51-85 Applicability

The procedures and regulations described in Title 24 of the Palau National Code for implementation and enforcement shall apply to the regulations contained in this Chapter. Penalties assessed under these regulations shall be for the number of days the public water supply remains in violation.

(Effective May 26, 1996)

2401-51-86 Penalties

(A) Any person who violates any provision of these regulations or any certificates, standard or order issued by the Board or any agency charged with responsibilities pursuant to these regulations shall be subject to a civil penalty not to exceed one thousand dollars (\$1,000) for each day of each such violation.

(B) Any person who willfully or negligently violates any provision of these regulations, or of any certification, certification condition, standard or order of the Board or any agency charged with responsibilities pursuant to these regulations, shall be subject to criminal prosecution and upon conviction shall be punished by a fine of not less than one hundred dollars (\$100) nor more than twenty-five thousand dollars (\$25,000) for each violation or by imprisonment not exceeding three (3) months, or both. Upon subsequent convictions for violations of these regulations, any such person shall be punished by a fine of not less than five hundred dollars (\$500) nor more than fifty thousand dollars (\$50,000) for each day of violation or by imprisonment not exceeding six (6) months, or both.

(C) Persons who, willfully or negligently, tamper with a public water system, shall be imprisoned for not more than 5 (five) years, fined, or both.

(D) Any person who attempts to tamper with a public water supply or threatens to do so shall be subject to imprisonment for not more than 3 (three) years, a fine, or both.

(E) The Board may bring a civil action against any person who tampers, attempts to tamper, or makes a threat to tamper with a public water system. The court may impose on such person a civil penalty of not more than fifty thousand dollars (\$50,000.00) for such tampering or not more than twenty thousand dollars (\$20,000.00) for such attempt or threat.

(Effective May 26, 1996)

MISCELLANEOUS PROVISIONS

2401-51-87 Severability

If any provision of these regulations or the application of any provision of these regulations to any person or circumstance is held invalid, the application of such provision to other persons or circumstances and the remainder of these regulations shall not be affected thereby.

(Effective May 26, 1996)

2401-51-88 Repealer

The regulations contained herein shall replace the Republic of Palau Environmental Quality Protection Board Public Water Supply System Regulations currently in effect in the Republic of Palau.

(Effective May 26, 1996)

EQPB Regulations Current as of January 8, 2013

CHAPTER 2401-61 ENVIRONMENTAL IMPACT STATEMENT REGULATIONS

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GENERAL PROVISIONS

2401-61-01 Purpose and Authority

The Environmental Quality Protection Act (RPPL No. 1-58) 24 Palau National Code Section 101 et. seq. as amended (the "Act") establishes general standards for environmental review by the Republic of Palau Environmental Quality Protection Board which shall insure that environmental concerns are given appropriate consideration in decision making along with economic and technical considerations. The purpose of this Chapter is to provide agencies and persons with procedures, specifications of contents of environmental impact statements and criteria and definitions of nationwide application.

(Effective May 26, 1996)

2401-61-02 Definitions

As used herein, unless the context otherwise requires, the term:

(A) "Acceptance" means a formal determination that the document required to be filed pursuant to Section 2401-61-18, fulfills the definitions and requirements of an environmental impact statement, adequately describes all identifiable environmental impacts, and satisfactorily responds to all comments received during the review of the statement. Acceptance does not mean that the action is environmentally sound or unsound nor denotes the grant of any permits required under the Environmental Quality Protection Act and any regulations promulgated thereunder, but only that the document complies with 24 PNC Sections 141 through 143.
(B) "Action" means any program or project to be initiated by an applicant.

(C) "Agency" means any department, office, board, or commission of any state government or the national government of the Republic of Palau.

(D) "Applicant" means any person who, pursuant to statute, ordinance, or rule, officially requests approval from the Board for a proposed action.

(E) "Approval" means a discretionary consent required from an agency prior to actual implementation of an action.

(F) "Discretionary Consent" means a consent, sanction, or recommendation from an agency for which judgment and free will may be exercised by the issuing agency.

(G) "Board," means the Republic of Palau Environmental Quality Protection Board or its authorized representative.

(H) "Environment" means humanity's surroundings, inclusive of all the physical, economic and social conditions that exist within the area affected by a proposed action, including land, human and animal communities, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

(I) "Environmental Assessment," or "EA" means a written evaluation by an applicant to determine whether an action may have a significant environmental effect.

(J) "Environmental Impact" means an effect of any kind, whether immediate or delayed, on any component of the whole of the environment.

(K) "Environmental Impact Statement" or "Statement" or "EIS" means an informational document prepared in compliance with 24 PNC Sections 141 through 143 and these regulations which discloses the environmental effects of a proposed action, effects of a proposed action on the economic and social welfare of the community, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects and alternatives to the action and their environmental effects. The initial statement filed for public review shall be referred to as the "draft statement" or "draft EIS" and shall be distinguished from the "final statement" or "final EIS" which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the Board.

(L) "Environmental Impact Statement Preparation Notice" or "EIS Preparation Notice" means a document informing the applicant of a Board determination, after an environmental assessment, that the preparation of an environmental impact statement is required.

(M) "Exempt Classes of Action" means exceptions from the requirements of these regulations for a class of actions, based on a determination that the class of actions will probably have a minimal or no significant effect on the environment.

(N) "Negative Declaration" means a determination by the Board that a given action not otherwise exempt does not have a significant effect on the environment and therefore does not require the preparation of an environmental impact statement.

(O) "Person" includes any individual, partnership, firm, association, trust, estate, private corporation, or other legal entity and includes any department, office, board or commission of the National Government or of any state government.

(P) "Significant Effect" or "Significant Impact" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the Republic of Palau's environmental policies or long-term environmental goals and guidelines as established under the Act and these regulations.

(Effective May 26, 1996)

ENVIRONMENTAL ASSESSMENT (EA) PROCESS

2401-61-03 Applicability

Except as otherwise provided, an environmental assessment shall be required for any and all actions which propose:

(A) The use of national or state lands;

(B) The use of national or state funds, unless the funds are to be used for:

(1) Feasibility or planning studies for possible future programs or projects which the applicant has not yet approved, adopted, or funded, provided however, that the applicant shall specifically consider environmental factors and available alternatives in its feasibility or planning studies, or;

(2) The acquisition of unimproved real property;

(C) Any use within any land which has been or may be classified as conservation district by the Republic or one of its state's land use commissions.

(D) Any use directly or indirectly impacting "coastal waters" and "wetlands" as defined in the Republic of Palau Marine and Fresh Water Quality Regulations.

(E) Any use within any historic site as designated by the Palau Historic Preservation Office.

(F) Any proposed action which the Board determines may have a significant impact on the environment.

(Effective May 26, 1996)

2401-61-04 Exempt Classes of Action

(A) Some classes of actions shall be exempted from preparation of an environmental assessment because they will probably have minimal or no significant effect on the environment. Actions exempt from the preparation of an environmental assessment under this section are not exempt from complying with any other applicable statute, rule or regulation. The following list represents exempt classes of action:

(1) Operations, repairs or maintenance of existing structures, facilities, equipment, or topographical features, involving negligible or no expansion or change of use beyond that previously existing;

(2) Replacement or reconstruction of existing structures and facilities where the new structure will be located generally on the same site and will have substantially the same purpose, capacity, density, height, and dimensions as the structure replaced;

(3) Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource;

(4) Construction and location of single, new, small facilities or structures and the alteration and modification of same and installation of new, small equipment and facilities and the alteration and modification of same including:

(a) Single family residences not in conjunction with the building of two or more of such units;

(b) Multi-unit structures designed for not more than four dwelling units if not in conjunction with the building of two or more such structures;

(c) Stores, offices and restaurants designed for total occupant load of twenty persons or less, if not in conjunction with the building of two or more such structures;

(d) Water, sewage, electrical, gas telephone and other essential public utility services extensions to serve such structures or facilities; and accessory or appurtenant structures including garages, carports, patios, swimming pools and fences;

(5) Interior alterations involving things such as partitions, plumbing, and electrical conveyances;

(6) Demolition of structures, except those structures located on any historic site.

(B) All exemptions under the classes in this section are inapplicable when the cumulative impact of planned successive actions of the same type, in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.

(Effective May 26, 1996)

2401-61-05 Contents of EA

(A) Identification of applicant;

(B) Identification of agencies and organizations consulted in making assessment;

(C) General description of the action's technical, economic, social, and environmental characteristics;

(D) Summary description of the affected environment, including suitable and adequate location and site maps;

(E) Identification and summary of major impacts and alternatives considered, if any; and

(F) Proposed mitigation measures, if any.

(Effective May 26, 1996)

2401-61-06 Significance Criteria

(A) In considering the significance of potential environmental effects, the Board shall consider the sum of effects on the quality of the environment, and shall evaluate the overall and cumulative effects of an action.

(B) In determining whether an action may have a significant effect on the environment, the Board shall consider every phase of a proposed action, the expected consequences, both primary and secondary, and the cumulative as well as the short and long-term effects of the action. In most instances, an action shall be determined to have a significant effect on the environment if it:

- (1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;
- (2) Curtails the range of beneficial use of the environment;
- (3) Conflicts with the Republic of Palau's long-term environmental policies or goals and guidelines as expressed in the Environmental Quality Protection Act and any revisions thereof and amendments thereto, any regulations promulgated thereunder and relevant court decisions;
- (4) Substantially affects the economic or social welfare of the community;
- (5) Substantially affects public health;
- (6) Involves a substantial secondary impacts, such as population changes or effects on public facilities or infrastructure;
- (7) Involves a substantial degradation of environmental quality;
- (8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;
- (9) Substantially affects a rare, threatened or endangered species, or its habitat;
- (10) Detrimentally affects air or water quality or ambient noise levels; or
- (11) Affects an environmentally sensitive area such as flood plain, erosion-prone area, geologically hazardous land, estuary, lagoon, reef area, mangrove swamp, fresh water, or coastal waters.

(Effective May 26, 1996)

2401-61-07 Notice of Determination

(A) After completing an environmental assessment, an applicant shall file four copies of an environmental assessment with the Board. After reviewing an applicant's environmental assessment, the Board shall issue a notice of determination. Public notice of a notice of determination *that an environmental impact statement must be prepared** shall be made in accordance with Section 2401-61-23 of this Chapter.

- (1) If the Board determines that an action requires the preparation of an environmental impact statement, the notice of determination will be considered to be an environmental impact statement preparation notice; or
- (2) If the agency determines that an environmental

impact statement is not required, the notice shall be considered to be a negative declaration.

(B) As soon as practicable after any determination is made, a notice of determination for any action should be delivered to the applicant by the Board.

(C) A notice of determination shall indicate in a concise manner:

- (1) Identification of applicant or proposing agency;
- (2) Brief description of proposed action;
- (3) Determination;
- (4) Reasons supporting determination; and
- (5) Name, address, and phone number of contact person for further information.

(Effective May 26, 1996)

* (Amendment Effective November 6, 1998)

ENVIRONMENTAL IMPACT STATEMENT (EIS) PROCESS

2401-61-08 Preparation of Draft and Final EIS

Where an environmental impact statement is required, the applicant shall arrange for the preparation of the environmental impact statement in accordance with Section 2401-61-11, submit the environmental impact statement for review and comments, and revise the environmental impact statement taking into account all critiques and responses. Consequently, an environmental impact statement involves more than the preparation of a document; it involves the entire process of research, discussion, preparation of a statement and review. The environmental impact statement process shall involve at a minimum: identifying environmental concerns, obtaining various relevant data, conducting necessary studies, receiving public and agency input, evaluating alternatives, and proposing measures for minimizing adverse impacts. An environmental impact statement is meaningless without the conscientious application of the environmental impact statement process as a whole, and shall not be merely a self-serving recitation of benefits and a rationalization of the proposed action.

(Effective May 26, 1996)

2401-61-09 Consultation Prior to Filing EIS.

(A) In the preparation of an environmental impact statement, an applicant shall insure that all appropriate parties both in the public and private sectors are consulted. To this end, an applicant shall endeavor to develop a fully acceptable environmental impact statement prior to the time the statement is filed with the Board, through a full and complete consultation process, and shall not rely solely upon the review process to expose environmental concerns.

(B) Upon public notification of an environmental impact statement preparation notice, agencies, groups or individuals shall have a period of thirty days in which to request to become a consulted party and to make written comments regarding the environmental effects of the proposed action. Upon written request by the consulted party and upon good cause shown, the Board may extend the period for comments for a period not to exceed thirty days.

(C) Upon receipt of a request to be a consulted party, the applicant shall immediately make a written request to the agencies, groups or individuals who wish to be consulted for comments and shall accompany said request with a copy of the environmental impact statement preparation notice. Additionally the applicant may provide any other information it deems necessary. The applicant may also contact other agencies, groups or individuals which it feels may provide pertinent additional information.

(D) Any substantive comments received by the applicant pursuant to this section shall be responded to in writing by the applicant prior to the filing of an environmental impact statement with the Board.

2401-61-10 Full Disclosure of Impacts and Alternatives Required

The environmental impact statement shall contain an explanation of the environmental consequences of the proposed action. The contents shall fully declare the environmental implications of the proposed action and shall discuss all relevant and feasible consequences of the action. In order that the public can be fully informed and that the Board can make a sound decision based upon the full range of responsible opinions on environmental effects, this statement must include responsible opposing views, if any, on significant environmental issues raised by the proposal.

(Effective May 26, 1996)

2401-61-11 Reimbursement of Fees; Independent Preparer Required

(A) Independent Third Party Preparer.

(1) With regards to projects which require an environmental impact statement under this Chapter, the Board shall require the applicant to have an independent third party prepare the environmental impact statement for the applicant's project.

(2) The applicant shall pay for the cost of the independent third party generating the applicant's environmental impact statement. In the event supplemental statements to the environmental impact statement are required by the Board, the applicant shall also pay for the costs of these supplemental statements.

(3) In order to choose the independent third party who

will prepare the applicant's environmental impact statement, the Board shall *prepare a list of consultants qualified in the preparation of environmental impact statements. The list shall be prepared annually by soliciting statements of qualifications for environmental consultants, which shall be evaluated by an internal review based on publicly announced criteria.**

(4) *The applicant shall select the independent third party to prepare the environmental impact statement for the applicant's project from the list compiled by the Board.** A contract for services shall then be negotiated and executed between the selected consultant and the applicant. *The applicant and consultant must consult with and receive the approval of the Board regarding the negotiated scope of work for the project before the contract is signed.**

(5) The applicant shall pay in advance for the preparation of the environmental impact statement prior to the commencement of work under the contract. *These monies shall be held in an escrow account by EQPB until such time as these monies are disbursed to the consultant.**

(B) Reimbursement for Monitoring, Inspection, and Miscellaneous Expenses Incurred by the Board.

(1) During the review by the Board of the draft and final environmental impact statement, the Board routinely engages in fieldwork and on-site inspections and incurs mailing, facsimile, telephone and copying charges.

(2) The applicant shall reimburse the Board for expenses it incurs during the preparation and review of the environmental impact statement *including mailing, facsimile, telephone, copying, transportation, and any fees paid to specialist required to review the environmental impact statement.**

(3) The Board shall submit an itemized list of these reimbursable costs to applicant prior to the issuance of a decision on the applicant's environmental impact statement and applicant shall pay same prior to the issuance of any decision on the project and within thirty days of the Board's submission of the itemized list. These fees are non-refundable in the event an application is denied.

(Effective May 26, 1996)

**(Amendment Effective November 6, 1998)*

2401-61-12 Content Requirements; Draft EIS

(A) The draft environmental impact statement, at a minimum, shall contain all the information required in this section.

(B) The draft environmental impact statement shall contain a summary sheet which concisely discusses the following:

- (1) Brief description of the action;
- (2) Significant beneficial and adverse impacts;
- (3) Proposed mitigation measures;
- (4) Alternatives considered;
- (5) Unresolved issues; and

(6) Compatibility with land use plans and policies, *including compatibility with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law,** and listing of permits or approvals.

(C) The draft environmental impact statement shall contain a table of contents.

(D) The draft environmental impact statement shall contain a statement of purpose and need for action.

(E) The draft environmental impact statement shall contain a project description which shall include the following information, but need not supply extensive detail beyond that needed for evaluation and review of the environmental impact:

(1) A detailed map (preferably United States Geological Survey topographic map) and related regional map;

(2) Statement of objectives;

(3) General description of the action's technical, economic, social, and environmental characteristics;

(4) Use of public funds or lands for the action;

(5) Phasing and timing of action;

(6) Summary technical data, diagrams, and other information necessary to permit an evaluation of potential environmental impact by commenting agencies and the public; and

(7) Historic perspective.

(F) The draft environmental impact statement shall contain any known alternatives for the action. These alternatives which could feasibly attain the objectives of the action—even though more costly—shall be described and explained as to why they were rejected. A rigorous exploration and objective evaluation of the environmental impacts of all reasonable alternative actions, particularly those that might enhance environmental quality or avoid or reduce some or all of the adverse environmental benefits, costs, and risks shall be included in the review process in order not to prematurely foreclose options which might enhance environmental quality or have less detrimental effects. Examples of the alternatives include:

(1) The alternative of no action or of postponing action pending further study;

(2) Alternatives requiring actions of a significantly different nature which would provide similar benefits with different environmental impacts;

(3) Alternatives related to different designs or details of the proposed actions which would present different environmental impacts; and,

(4) Alternative measures to provide for compensation of fish and wildlife losses, and water quality and wetlands losses including the acquisition of land, waters, and interests therein.

In each case, the analysis shall be sufficiently detailed to allow the comparative evaluation of the environmental benefits, costs, and risks of the proposed action and each reasonable alternative.

(G) The draft environmental impact statement shall contain a description of environmental setting, including a description of the environment in the

vicinity of the action, from both a local and regional perspective. Special emphasis shall be placed on environmental resources that are rare or unique to the region and the project site (including natural or man-made resources of historic, archaeological, or aesthetic significance); specific reference to related projects, public and private, existing or planned in the region shall be included for purposes of examining the possible overall cumulative impacts of such actions. It is essential that the sources of data used to identify, quantify, qualify, or evaluate any and all environmental consequences be expressly noted.

(H) The draft environmental impact statement shall contain a statement of the relationship of the proposed action to land use plans, policies, and controls for the affected area on both the national and state government levels as well as land policies and land uses under traditional Palauan law. Discussion of how the proposed action may conform or conflict with objectives and specific terms of approved or proposed land use plans, policies, controls, and traditional uses, if any, for the area affected shall be included. Where a conflict or inconsistency exists, the statement shall describe the extent to which the applicant has reconciled its proposed action with the plan, policy, control, or use and the reasons why the applicant has decided to proceed, notwithstanding the absence of full reconciliation. The draft environmental impact statement shall also contain a list of necessary approvals, required for the action, from governmental agencies, boards, commissions, traditional leaders or other similar groups having jurisdiction. The status of each identified approval shall also be described.

(I) The draft environmental impact statement shall contain a statement of the probable impact of the proposed action on the environment, which shall include consideration of all consequences on the environment; direct and indirect effects shall be included. The interrelationships and cumulative environmental impacts of the proposed action and other related projects shall be discussed in the draft environmental impact statement. It should be realized that several actions, in particular those that involve the construction of public facilities or structures (e.g., highways, airports, sewer systems, water resource projects, etc.) may well stimulate or induce secondary effects. These secondary effects may be equally important as, or more important than, primary effects, and shall be thoroughly discussed to fully describe the probable impact of the proposed action on the environment. The population and growth impacts of an action shall be estimated if expected to be significant, and an evaluation made of the effects of any possible change in population patterns or growth upon the resource base, including land use, water, and public services, of the area in question. Also, if the proposed action constitutes a direct or indirect source of pollution as prescribed by any governmental agency, necessary data shall be incorporated in the draft environmental impact statement. The significance of the impacts shall be discussed in

terms of Divisions J through M, inclusive, of this Section.

(J) The draft environmental impact statement shall address the relationship between local short term uses of the environment and the maintenance and enhancement of long-term productivity. A brief discussion of the extent to which the proposed action forecloses future options, narrows the range of beneficial uses of the environment, or poses long-term risks to health or safety shall be included.

(K) The draft environmental impact statement shall address all irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. Identification of unavoidable impacts and the extent to which the action makes use of non-renewable resources during the phases of the action, or irreversibly curtails the range of potential uses of the environment shall also be included. The possibility of environmental accidents resulting from any phase of the action shall also be considered. For purposes of this Section, "resources" also means the natural and cultural resources committed to loss or destruction by the action.

(L) The draft environmental impact statement shall address all probable adverse environmental effects which cannot be avoided. Any adverse effects such as water or air pollution, urban congestion, threats to public health or other consequences adverse to environmental goals and guidelines established by the Environmental Quality Protection Act, shall be included as a brief summary including those effects to be discussed pursuant to other Divisions of this Section which are adverse and unavoidable under the proposed action. Also, any rationale for proceeding with a proposed action, notwithstanding unavoidable effects, shall be clearly set forth. The draft environmental impact statement shall indicate what other interests and considerations of governmental policies are thought to offset the adverse environmental effects of the proposed action. The statement shall also indicate the extent to which the stated countervailing benefits could be realized by following reasonable alternatives to the proposed action that would avoid some or all of the adverse environmental effects.

(M) The draft environmental impact statement shall consider mitigation measures proposed to minimize impact. Description of any mitigation measures included in the action plan to reduce significant, unavoidable, adverse impacts to insignificant levels, and the basis for considering these levels acceptable shall be included. Where a particular mitigation measure has been chosen from among several alternatives, the measures shall be discussed and reasons given for the choice made.

(N) The draft environmental impact statement shall contain a summary of unresolved issues and either a discussion of how such issues will be resolved prior to commencement of the action, or what overriding reasons there are for proceeding without resolving the problems.

(O) The draft environmental impact statement shall contain a list identifying all governmental agencies, other organizations and private individuals consulted in preparing the statement, and the identity of the persons, firms, or agencies preparing the statement, by contract or other authorization, shall be disclosed.

(P) The draft environmental impact statement shall contain reproductions of all substantive comments and responses made during the consultation process. A list of those consulted who had no comment shall be included in the draft environmental impact statement.

(Effective May 26, 1996)

2401-61-13 Content Requirements; Final EIS

The final environmental impact statement shall consist of:

(A) The draft environmental impact statement or a revision of the draft;

(B) Comments and recommendations received on the draft environmental impact statement either verbatim or in summary;

(C) A list of persons, organizations and public agencies commenting on the draft environmental impact statement;

(D) The responses of the applicant to significant environmental points raised in the review and consultation process. The response of the applicant to comments received may take the form of a revision of the draft environmental impact statement or may be an attachment to the draft environmental impact statement. The response shall describe the disposition of significant environmental issues raised (e.g., revisions to the proposed project to mitigate anticipated impacts or objections). In particular, the major issues raised when the applicant's position is at variance with recommendations and objections raised in the comments shall be addressed in detail giving reasons why specific comments and suggestions were not accepted, and factors of overriding importance warranting an override of the suggestions.

(Effective May 26, 1996)

2401-61-14 EIS Style

In developing the environmental impact statement, preparers shall make every effort to convey the required information succinctly in a form easily understood, both by members of the public and by public decision makers, giving attention to the substance of the information conveyed rather than to the particular form, length, or detail of the statement. The scope of an environmental impact statement may vary with the scope of the proposed action and its impact. Data and analyses in an environmental impact statement shall be commensurate with the importance of the impact, and less important material may be summarized, consolidated, or simply referenced. An environmental impact statements shall

indicate at appropriate points in the text any underlying studies, reports, and other information obtained and considered in preparing the statement, including cost benefit analyses and reports required under other legal authorities. Care shall be taken to concentrate on important issues and to ensure that an environmental impact statement remains an essentially self-contained document, capable of being understood by the reader without the need for undue cross-reference.

(Effective May 26, 1996)

FILING AND DISTRIBUTION OF FINAL AND DRAFT EIS

2401-61-15 Filing of EIS

(A) The applicant shall file the original (signed) draft environmental impact statement with the Board, along with ten copies of the draft environmental impact statement. The Board may require the applicant to submit extra copies if it deems necessary.

(B) The applicant shall file the original (signed) final environmental impact statement with the Board along with ten copies of the final environmental impact statement. The Board may require the applicant to submit extra copies if it deems necessary.

(Effective May 26, 1996)

2401-61-16 Distribution

(A) The Board shall be responsible for the advertisement of the notice of availability of the draft and final environmental impact statement pursuant to Section 2401-61-23 of these regulations, and for distribution of the draft and final environmental impact statement for agency and public review.

(B) The Board shall develop a list of reviewers (i.e., persons and agencies with jurisdiction or expertise in certain areas relevant to various actions) and a list of public repositories where copies of an environmental impact statement shall be available. To the extent possible, the Board shall make copies of the environmental impact statement available to individuals requesting an environmental impact statement.

(C) The Board's distribution list may be developed cooperatively among the applicant and the Board provided the Board shall be responsible for determining the final list. The applicant may directly distribute any portion of the required copies to those on the list, provided that the Board is informed at the time the environmental impact statement is filed.

(Effective May 26, 1996)

2401-61-17 Public Review and Comment

(A) The period for public review and for submitting written comments shall commence as of the date

notice of availability of the draft* environmental impact statement is advertised and shall continue for a period of *thirty days*. *Written comments to the Board, with a copy of the comments to the applicant, shall be received by the Board, or postmarked, within said thirty-day period. Any late comments need not be considered or responded to by the applicant or the Board, unless the Board requires a response from the applicant.

(B) The applicant shall respond in writing to the comments received or postmarked during the thirty-day review period and incorporate or append the comments and responses in the final environmental impact statement within thirty days from the end of the thirty-day review period. The response to comments shall include:

(1) Point-by-point discussion of the validity, significance, and relevance of comments; and
(2) Discussion as to how each comment was evaluated and considered in planning the proposed action.

(C) The response shall endeavor to resolve conflicts, inconsistencies, or concerns. Comments and responses shall be incorporated or appended in the final environmental impact statement.

(D) At the board's discretion, the applicant and/or the Board shall hold public hearings regarding the project within thirty days of the date of the notice of availability of the draft and final environmental impact statements.

(Effective May 26, 1996)

**(Amendment Effective November 6, 1998)*

2401-61-18 Acceptability

(A) Acceptability of a draft or final statement shall be evaluated on the basis of whether the statement, in its completed form, represents an informational instrument which fulfills the definition of an environmental impact statement and adequately discloses and describes all identifiable environmental impacts and satisfactorily responds to review comments.

(B) A statement shall be deemed to be an acceptable document only if all of the following criteria are satisfied:

(1) Procedures for assessment, consultation process, a review responsive to comments, and the preparation and submission of the statement, have all been completed satisfactorily as specified in these regulations;

(2) Content requirements described in this chapter have been satisfied; and

(3) Comments submitted during the review process have received responses satisfactory to the Board, and have been incorporated or appended, at the discretion of the applicant to the statement.

(C) For actions where the national government, state government, its boards, agencies or commissions are applicants, the applicant shall prepare the environmental impact statement in accordance with

24 PNC Sections 141 through 143, and these regulations.

(1) In all cases involving state funds or lands, both the governor or an authorized representative and the Board shall have final joint authority to accept the environmental impact statement.

(2) In cases involving only national government funds or lands, the President or an authorized representative and the Board shall have joint final authority to accept the environmental impact statement.

(3) In the event that the action involves both state and national government lands or funds, the President or an authorized representative and the Board shall have joint final authority to accept the environmental impact statement.

(D) Upon acceptance or non-acceptance of the environmental impact statement, a notice shall be issued by the Board and served on the applicant. For any non-accepted environmental impact statement, the notice shall contain specific findings and reasons for non-acceptance. The Board shall publish the determination of acceptance or non-acceptance as described in section 2401-61-23 of these regulations. Acceptance of a required statement shall be a condition precedent to the use of state or national government lands or funds in implementing the proposed action.

(Effective May 26, 1996)

SUPPLEMENTAL STATEMENTS

2401-61-19 General

A statement that is accepted with respect to a particular action is usually qualified by its size, scope, location and timing, among other things. If there is any major change in any of these characteristics, the original statement shall no longer be completely valid because an essentially different action would be under consideration. As long as there is no substantial change in a proposed action, the statement associated with that action shall be deemed to comply with these regulations. If there is any major change, a supplemental statement shall be prepared and reviewed as provided by these regulations.

(Effective May 26, 1996)

2401-61-20 Determination of Applicability

The Board shall be responsible for determining whether a supplemental statement is required. Applicants shall prepare for public review supplemental statements whenever the proposed action for which a statement was accepted has been modified to the extent that new or different environmental impacts are anticipated. A supplemental statement shall be warranted when the scope of an action has been substantially increased,

when the intensity of environmental impacts will be increased, when the mitigating measures originally planned are not to be implemented, or where new circumstances or evidence have brought to light different or likely increased environmental impacts not previously addressed.

(Effective May 26, 1996)

2401-61-21 Contents

The contents of the supplemental statement shall be the same as required by this chapter for the environmental impact statement and may incorporate by reference unchanged material from the same; however, in addition, it shall fully document the proposed changes from the original environmental impact statement and completely and thoroughly discuss the environmental impact statement process followed for these changes, the positive and negative aspects of these changes, and shall comply with the content requirements of sections 2401-61-08 through 2401-61-18, inclusive, as they relate to the changes.

(Effective May 26, 1996)

2401-61-22 Procedures

The requirements of consultation, filing public notice, distribution, public review, comments and response, and acceptance procedures, shall be the same for the supplemental statement as is prescribed by this Chapter for an environmental impact statement.

(Effective May 26, 1996)

PUBLIC NOTICE AND IMPACT FEES

2401-61-23 Public Notice and Records

(A) All environmental impact statements and other documents prepared under these rules shall be made available for inspection by the public during established office hours.

(B) The Board shall inform the public by radio announcement of:

(1) Notices filed by the Board of determinations that environmental impact statements are required or not required.

(2) The availability of such environmental impact statements for review and comment regarding the acceptance or non-acceptance of statements; and

(3) Any other instance cited in these regulations requiring public notice.

2401-61-24 Environmental Impact Fees

(A) Whether or not an action requires an environmental impact statement, the applicant shall pay a non-refundable Environmental Impact Fee. The Environmental Impact Fee shall be paid within thirty

days after the applicant has obtained all necessary permits to commence an action, but prior to the commencement of any construction relative to that action. The Environmental Impact Fee shall be paid by check, made payable to the National Treasury of the Republic of Palau, and in accordance with the following fee schedule:

(1) No fee for Republic of Palau national government or state government projects so long as such projects are 100% financed by national or state government funds. In the event of a joint venture between the Palau national government or a state government and a third party, the project shall be subject to the fees stated in Section 2401-61-24(A)(3) herein.

(3) All other fees for projects shall be based upon the greater of:

(a) An appraisal of construction costs for structures affixed to the ground pursuant to the following schedule:

FEE AMOUNT	SIZE OF PROJECT
100.00	Less than or equal to \$ 50,000.00
200.00	Less than or equal to \$100,000.00
750.00	Greater than \$100,000 but less than \$500,000.00
1,500.00	Greater than \$500,000 but less than \$100,000.00

\$For each \$1 million increment in the cost/size of the project there shall be assessed an additional fee of \$1,500.00 up to maximum total fee of \$300,000.00;

or,

b) A fee which is generated by the Board after an examination of the project's environmental impact statement.

(B) Division A of this Section shall not take effect until the Palau Environmental Quality Protection Act (RPPL No. 1-58) has been amended to reflect same.

(Effective May 26, 1996)

MISCELLANEOUS PROVISIONS

2401-61-25 Severability

If any provision of this Chapter or the application thereof to any person or circumstance is held invalid, the invalidity shall not affect other provisions or applications of this Chapter which can be given effect without the invalid provision or application; and to this end, the provisions of this Chapter are declared to be severable.

(Effective May 26, 1996)

2401-61-26 Repealer

The regulations contained herein shall replace the Republic of Palau Environmental Quality Protection Board Environmental Impact Statement Regulations currently in effect in the Republic of Palau.

(Effective May 26, 1996)

2401-61-27 Protected Areas

*Any activity subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

*(Amendment Effective March 12, 1999)

CHAPTER 2401-71 AIR POLLUTION CONTROL REGULATIONS

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GENERAL PROVISIONS

2401-71-01 Authority

These regulations are promulgated by the Republic of Palau Environmental Quality Protection Board, to provide for the control of the discharge of pollutants into the air, pursuant to the authority granted it by RPPL 1-58 (24 PNC §100, et seq.), the Republic of Palau Environmental Quality Protection Act. These regulations shall have the force and effect of law.

(Effective May 26, 1996)

2401-71-02 Purpose

(A) WHEREAS, it is recognized that there has been and may further be a growth in the amount and complexity of air pollution brought about by increasing population and industrial development resulting in dangers to the public health and welfare and the environment, including injury to agricultural crops and livestock, damage to and deterioration of property, and hazardous to air and ground transportation; and
(B) WHEREAS, it is the responsibility of the Palau Environmental Quality Protection Board to control the quality of air for the purpose of maintaining and protecting public health, safety and welfare and the environment in the Republic; and
(C) WHEREAS, in order to accomplish air quality control, it is necessary to prevent or control the emission of air contaminants at their source; and
(D) WHEREAS, it is the purpose of these Standards and Regulations to control air quality of the Republic to the extent that it is feasible and consistent with the growth of the area; and
(E) NOW, THEREFORE, the Board does hereby order compliance with the following Regulations to be known as "Republic of Palau Environmental Quality Protection Board Air Pollution Control Regulations."

(Effective May 26, 1996)

2401-71-03 Definitions

The following words and terms, when used in these Regulations, shall have the following meanings, unless the context clearly indicates otherwise:

(A) "Air Contaminant" shall mean dust, fumes, mist, smoke, other particulate matter, vapor, gas, odorous substances, or any combination thereof.

(B) "Air Pollution" shall mean the presence in the clean air of one or more contaminants in such amounts and length of time as is or tends to be harmful to human health or welfare, animal or plant life, property, or interferes with the enjoyment of life or property.

(C) "Annual Average Capacity Factor" shall mean the ratio of the average load on a machine or equipment for a period of one (1) year (8760 hours) to the capacity rating of the machine or equipment.

(D) "Applicant" shall mean owner or designated representative.

(E) "Board," shall mean the Republic of Palau Environmental Quality Protection Board or its authorized representative.

(F) "Buffer Zone" shall mean the area surrounding a stationary source, access to which is effectively prohibited to persons other than employees of the stationary source. The boundaries and areas outside the buffer zone shall be used for clean air quality sampling.

(G) "CFR" shall mean the United States Code of Federal Regulations.

(H) "Chairman" shall mean the Chairman of the Environmental Quality Protection Board or the Chairman's authorized representative.

(I) "Clean Air" shall mean the outdoor air or atmosphere, outside to buildings, stacks, or exterior ducts, which surrounds the earth.

(J) "Complex Sources" shall mean any stationary source, including buildings, structures, or installations, which affect air quality by indirect means, primarily by means of mobile source activity associated with them. For the purpose of these Regulations "Complex Sources" shall be defined as, but not limited to, the following:

(1) Projects requiring Environmental Impact Statements or Assessments such as roads and airports;

(2) Parking facilities with a capacity of 10-50 vehicles or one half (1/2) acre of surface area;

(3) Drive-in facilities;

(4) Commercial buildings with over ten thousand (10,000) square feet of floor space;

(5) Sports complexes with a capacity of over fifty (50) persons;

(6) Amusement parks and other recreational facilities with a capacity of over fifty (50) persons;

(7) Commercial, industrial, institutional or public buildings employing and accommodating a total of more than fifty (50) persons in any eight (8) hour period;

(8) Hotels, motels, and multi-family dwellings with accommodations for more than twenty-five (25) persons;

(9) Residential subdivisions consisting of over eight (8) dwelling units.

(K) "Excess Emission" shall mean an emission rate which exceeds any applicable emission limitation prescribed by Sections 2401-71-46 through 2401-71-57, inclusive of these Regulations.

(L) "Existing Source" shall mean those point and complex sources which emit air contaminants from equipment, machines, devices, or installations which are in existence on December 25, 1981; except, any point and complex source or their existing equipment, machines, devices, or installations which are modified after June 25, 1980.

(M) "Fuel-Burning Equipment" shall mean any furnace, boiler, apparatus, stack, and all attachments thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.

(N) "Fugitive Dust" shall mean any air-borne solid matter emitted from any source other than a stack or chimney.

(O) "Garbage" shall mean animal or vegetable matter originating in homes, restaurants, and food service and processing establishments.

(P) "Malfunction" shall mean any sudden and unavoidable failure of air pollution control equipment or process equipment, or a process, or a unit operation, to operate in a normal and usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any preventable condition or preventable equipment breakdown shall not be considered malfunctions.

(Q) "Mobile Source" shall mean any vehicle air contaminant source, including but not limited to, automobiles, trucks, buses, other motor vehicles, aircraft, ships, boats, and other water craft, but not including any source attached to a vehicle whether such attachment is permanent or temporary, when this source is not used to supply power to the vehicle.

(R) "Modify" shall mean any physical change in, or change in method or hours of operation of an existing facility which changes the amount of any air pollutant emitted by such sources or which results in the emission of any air pollutant not previously emitted, including the installation, alteration, or removal of air pollution control devices, except that routine maintenance, repair and replacement shall not be considered physical changes.

(S) "Multiple-Chamber Incinerator" shall mean any machine, equipment, structure or part of a structure, used to dispose of burnable waste, such as hazardous hospital waste, by burning and consisting of three or more refractory lined combustion furnaces in series which are physically separated by refractory walls and inter-connected by gas passage openings or ducts and employing adequate design features necessary for maximum combustion of the material to be burned.

(T) "New Motor Vehicle" shall mean any self-propelled vehicle manufactured on the current calendar or model year to be used on public roads and highways for the purpose of transportation or conveyance of material.

(U) "New Motor Vehicle Engines" shall mean engines manufactured on the current calendar or model year to be used for providing power to motor vehicles.

(V) "New Source" shall mean those point and complex sources including their equipment, machines, devices, or installations built or installed or for which a legal agreement to construct or modify is entered into after June 25, 1980, and any point or complex source moved to another site, or which is purchased and is to be operated by a new owner, or which is to be operated by a new lessee after June 25, 1980.

(W) "Nuisance" shall mean anything which is dangerous to life, harmful to health, or makes soil, air, water or food impure or unwholesome.

(X) "Odor" shall mean those amounts of matter which make it noticeable to the smelling senses of man.

(Y) "Opacity" shall mean a condition which makes material partly or totally block out the rays of light or causes obstruction of an observer's view.

(Z) "Open Burning" shall mean the burning of any matter in such a manner that the remaining material resulting from the burning are emitted directly into the clean air without passing through a stack, duct, or chimney determined by the Chairman to be adequate.

(AA) "Owner or Operator" shall mean any person who owns, leases, operates, controls, or supervises a facility, machine, equipment, or other source of air contaminant. With sources where a legal agreement to construct or modify is entered into, the contractor is also liable for violation of these Regulations during construction of the facility.

(BB) "Particulate Matter" shall mean any material, except water in pure form, that is or has become airborne and exists as a liquid or as solid at normal conditions.

(CC) "Person" shall mean the Republic of Palau, a state, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm, or company organized or existing under the laws of the Republic or of any state or country, a lessee or other occupant or property, or an individual, singly or as a group.

(DD) "Point Source" shall mean any source which emits air contaminants through a stack or chimney or from processing, handling, or storage of materials.

(EE) "Process Industries" shall mean industries which involve physical and chemical changes of the material as it passes through the different process units or operation stages, as a result of which, air contaminants may be emitted to the atmosphere. Process industries include but are not limited to rock processing industries, portland cement plants, concrete batching plants, asphaltic concrete batching plants, and concrete block plants.

(FF) "Refuse" shall mean any burnable waste material, commercial waste, or animal or vegetable garbage.

(GG) "Ringlemann Chart" shall mean the chart, published and described in the United States Bureau of Mines Information Circular No. 8333.

(HH) "Road" shall mean any public or private access or easement used for motor vehicle travel.

(II) "Seal" shall mean to protect a surface so that it is secure from erosion.

(JJ) "Shutdown" shall mean the stopping of operation of any stationary source, air pollution control equipment or process equipment for any purpose, except routine phasing out of process equipment.

(KK) "Soiling Index" shall mean a measure of the soiling properties of suspended particles in air determined by drawing a measured volume of air through a known area of Whatman No. 4 filter paper for a measured period of time, expressed as

COH's/1,000 linear feet. "COH" shall mean coefficient of haze, a unit of measurement of visibility interference.

(LL) "Source" shall mean any property, public or private, real or person contributing to air pollution.

(MM) "Stack or Chimney" shall mean any flue, conduit, or duct arranged to conduct emissions.

(NN) "Stationary Source" shall mean all air contaminant sources, except mobile sources, and shall include both complex and point sources.

(OO) "Start-Up" shall mean the setting into operation of any stationary source, air pollution control equipment or process equipment for any purpose, except routine phasing out of process equipment.

(Effective May 26, 1996)

AIR QUALITY STANDARDS

2401-71-04 Introduction

(A) The following air quality standards are the desirable levels of clean air quality for the Republic of Palau. Based on present knowledge, these levels are not expected to produce health hazards or impairment, injury to agricultural crops and livestock, damage to or deterioration of property, and hazards to air and ground transportation, or in any manner, interfere with the protection of the public welfare.

(B) No person shall cause, permit, or allow any discharge or release of air pollutants that causes the air to fail to meet any air quality standard.

(Effective May 26, 1996)

2401-71-05 Air Quality Standards

(A) Air Quality Standards for designated pollutants shall be:

Pollutant	Levels Not to Exceed
(1) Sulfur Oxides	60 micrograms/m ³ (0.02ppm) ^a 365 micrograms/m ³ (0.12ppm) ^b 1,300 micrograms/m ³ (0.5ppm) ^e 650 micrograms/m ³ (0.25ppm) ^g
(2) Particulate Matter	60 micrograms/m ^{3c} 150 micrograms/m ^{3b} 360 micrograms/m ^{3d}
(3) Carbon Monoxide	10 milligrams/m ³ (9ppm) ^d 40 milligrams/m ³ (35ppm) ^e
(4) Photochemical	160 micrograms/m ³ (0.08ppm) ^e
(5) Oxidants	
(6) Hydrocarbon	160 micrograms/m ³ (0.24ppm) ^f
(7) Nitrogen Oxides	160 micrograms/m ³ (0.05ppm) ^{aa}

^a Annual arithmetic mean.

^c Annual geometric mean.

^d Maximum 8-hour concentration not to be exceeded more than once a year.

^e Maximum 1-hour concentration not to be exceeded more than once a year.

^f Maximum 3-hour concentration not to be exceeded more than once a year.

^g Maximum 4-hour concentration not to be exceeded more than once a year.

(B) All measurements of air quality are corrected to a standard temperature of 25°C (77°F) and to a

standard pressure of 760 millimeters of mercury (1,013.2 millibar).

(Effective May 26, 1996)

2401-71-06 Antidegradation

The promulgation of these air quality standards shall not be considered in any manner to allow significant deterioration of existing air quality of any portion of the Republic.

(Effective May 26, 1996)

PERMITS

2401-71-07 Permit to Construct

No person shall cause or allow the construction or modification of any stationary source without first obtaining a Permit to Construct from the Chairman as to the location and design of such stationary source to comply with applicable Regulations. This Permit is for construction or modification only and shall be terminated upon start up of operation of the source. *The construction of any new or existing stationary source subject to the provisions of this Chapter shall comply with the terms, conditions, provisions, and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

(Effective May 26, 1996)

**(Amendment Effective March 12, 1999)*

2401-71-08 Permit to Operate

(A) No person shall cause or allow the operation of a new stationary source without obtaining a Permit to Operate from the Chairman. Application shall be made to the Chairman at least thirty (30) days prior to the anticipated date of operation.

(B) No person shall cause or allow the use or operation of any existing stationary source without obtaining a Permit to Operate from the Chairman.

(C) No owner or operator shall cause or allow the operation of a new or existing stationary source if the Chairman denies or revokes a Permit to Operate.

(D) The Permit to Operate shall be valid for 365 days or for such shorter periods as the Board may specify in the operating permit. Application for renewal of a Permit to Operate shall be submitted to the Board at least sixty (60) days prior to the expiration of the Permit.

(E) *The operation of any new or existing stationary source subject to the provisions of this Chapter shall comply with the terms, conditions, provisions, and management plans for any National, State or traditional conservation area, preserve or other protected area as established by law.**

(Effective May 26, 1996)

**(Amendment Effective March 12, 1999)*

2401-71-09 Exemptions

Permits to construct and to operate shall not be required for:

(A) The installation or alteration of an air contaminant detector, air contaminant recorder, combustion controller, or combustion shutoff.

(B) Air conditioning or ventilating systems not designed to remove air contaminants generated by or released from equipment.

(C) Mobile internal combustion engines.

(D) Laboratory equipment used exclusively for chemical or physical analyses.

(E) Other sources of minor significance specified by the Board.

(Effective May 26, 1996)

2401-71-10 Application

(A) Application for Permit to Construct or Permit to Operate shall be made by the source owner, operator, or other responsible person on forms furnished by the Chairman, and shall be accompanied by two copies of complete data, citing information including vicinity maps and plot plans, the dimensions and boundaries of the buffer zone, plan descriptions, and specifications, drawings and other detailed information necessary to determine how the new source or existing source is designed and in what manner it will be operated and controlled.

(B) A separate application is required for each source. To aid in evaluating a source, supplemental applications may be required by the Board Chairman.

(C) Each application shall be signed by the applicant. The signature of the applicant shall constitute an agreement that the applicant will assume responsibility for the construction, modification, and/or use of the source concerned in accordance with these Regulations.

(Effective May 26, 1996)

2401-71-11 Standards for Approval, Conditional Approval, or Denial of Permit Applications

The Chairman shall not approve an application for a Permit to Construct or for a Permit to Operate, unless the applicant shows to the satisfaction of the Chairman that:

(A) The source is designed and built and will be maintained and operated so as not to violate any of the applicable Regulations.

(B) Air conditioning or ventilating systems not designed to remove air contaminants generated by or released from equipment.

(C) Mobile internal combustion engines.

(D) Adequate precautions will be taken to prevent the emission of fugitive dust and to prevent the violation

of any Air Quality Standards during construction of the source.

(E) The source has been constructed or modified and will be operated and maintained in accordance with the requirements and conditions contained in the Permit to Construct and the Permit to Operate.

(Effective May 26, 1996)

2401-71-12 Conditional Approval

The Chairman may grant conditional approval to construct, modify, or operate if it appears likely from the information submitted in the permit application, the source will satisfy the requirements of Section 2401-71-11 but testing, inspection, or sampling is required to verify that the requirements of Section 2401-71-11 are met and/or maintained. To aid in this verification, the Chairman may:

(A) Require the source owner or operator to provide such facilities as are necessary for sampling and testing to determine the air pollutants discharged into the atmosphere. These sampling and testing facilities may consist of the following:

- (1) Sampling ports of a size, number and location as specified by the Chairman.
- (2) Safe access to each port.
- (3) Instrumentation to monitor and record emission data.
- (4) Any other sampling and testing facilities specified by the Chairman.

(B) Require performance testing as outline in Section 2401-71-16.

(C) Make any necessary inspections, samples or tests.

(D) Specify conditions to be met which will bring the operation of any source within the approval requirements.

(Effective May 26, 1996)

2401-71-13 Permit Denial

(A) The Chairman shall deny an application for a Permit to Construct or for a Permit to Operate if the information submitted shows that the source described in the application cannot meet the requirements of Sections 2401-71-11 or 2401-71-12.

(B) The Chairman shall deny an application for a Permit to Operate if the source has not been constructed or modified in accordance with the approved application, plans, or other limiting conditions of the Permit to Construct.

(Effective May 26, 1996)

2401-71-14 Public Notice

All complex sources require official notice of an application for a Permit to Construct to afford opportunity for public comment. In addition, a public hearing may be held on any application for a Permit to Construct a complex or point source if requested by

the Chairman. Notices shall be by prominent advertisement and shall specify a location at which information submitted by the applicant, and the Board's analysis and proposed approval or disapproval is available for public inspection. The notice shall allow at least a thirty (30) day period for submittal of public comment.

(Effective May 26, 1996)

2401-71-15 Action on Applications

(A) Before acting on an application for a Permit to Construct or for a Permit to Operate the Chairman may require the applicant to furnish additional information, plans or specifications.

(B) The Chairman shall act within ninety (90) days on application for a Permit to Construct and within sixty (60) days on an application for a Permit to Operate and shall notify the applicant in writing of his approval, conditional approval or denial of the application. Should additional information, plans or specifications be requested, the ninety (90) or sixty (60) day limitation will begin on the latest date of receipt of requested data.

(C) If an application is conditionally approved or denied, the Chairman shall set forth his reasons for conditional approval or denial in a written notice to the applicant.

(D) The Chairman shall not further consider the application unless the applicant has satisfactorily addressed the objections and complied with requirements specified by the Chairman as his reasons for conditional approval or denial of the permit application.

(E) The applicant may reapply if the facility is redesigned to attain compliance with the Regulations.

(F) The applicant may request the Chairman to reconsider the application by submitting written evidence or information (in duplicate), within thirty (30) days of the conditional approval or denial of the application, which shows the source will comply with these Standards and Regulations.

(G) The applicant may appeal the Chairman's decision to the full Board within thirty (30) days after the conditional approval or denial of the permit application.

(H) If the Chairman issues to the applicant a conditional approval of the application, commencing work under a Permit to Construct, or operating under a Permit to Operate shall be deemed acceptance by the applicant of all conditions so specified.

(I) Any Permit to Construct or to Operate shall be subject to revision in response to changes in the applicable law, regulations, or other factors affecting the compliance of the source or control facility with the standards or conditions of the original permit.

(Effective May 26, 1996)

2401-71-16 Performance Testing

(A) If required by the Chairman, the source owner or operator shall conduct performance tests in order to determine compliance with applicable Regulations in accordance with test methods approved by the Chairman, the tests being made at the expense of the applicant. The Chairman may monitor performance tests conducted by the applicant and may conduct additional performance tests.

(B) Within sixty (60) days after achieving the maximum production rate at which the affected facility will be operated, but not later than one hundred and eighty (180) days after the initial start up of such facility the owner or operator of such facility shall conduct performance test(s) and submit to the Chairman a written report of the results of such performance test(s), within thirty (30) days.

(Effective May 26, 1996)

2401-71-17 Revoking of Permits

(A) A Permit to Construct is revoked if the construction or modification is not begun within one (1) year of the date of issuance, or if the work involved in the construction or modification is suspended for one year or more after the date of issuance, unless the applicant secures an extension of the expiration date by written request to the Chairman stating the reasons for the request. Extensions may be granted in writing for a period of not more than six (6) months.

(B) The Chairman shall revoke a Permit to Construct if the construction or modification is not in compliance with the approved application, plans, or limiting conditions of the permit.

(C) The Chairman shall revoke a Permit to Operate for willful or continued violation of these Regulations or permit conditions.

(D) Revocation of a Permit to Construct or of a Permit to Operate shall become final ten (10) days after service of Notice on the holder of the Permit.

(E) A Permit to Operate which has been revoked pursuant to these Regulations shall be surrendered forthwith to the Chairman.

(Effective May 26, 1996)

2401-71-18 Transfer of Permit

A Permit to Construct or a Permit to Operate shall not be transferable, whether by operation of law or otherwise, either from one location to another, from one piece of equipment to another, or from one person to another.

(Effective May 26, 1996)

2401-71-19 Reporting Information

No owner or operator shall cause or permit the operation of any source without furnishing such performance test results, information, and records as may be required by the Chairman.

(Effective May 26, 1996)

2401-71-20 Responsibility of the Permit Holder

Possession of a Permit to Construct or a Permit to Operate shall not relieve any person of the responsibility to comply with the applicable emission limitations, permit conditions, Air Pollution Control or other Regulations.

(Effective May 26, 1996)

2401-71-21 Reporting Discontinuance or Dismantlement

It shall be required of that person to whom a Permit to Operate was issued to report to the Chairman within thirty (30) days of the discontinuance or dismantlement of that machine, equipment, or other article for which the Permit to Operate had been issued. The Permit to Operate shall then be surrendered forthwith to the Chairman.

(Effective May 26, 1996)

2401-71-22 Posting of Permits

Upon granting an approval for a Permit to Construct or for a Permit to Operate, the Chairman shall issue to the applicant a certificate referred to as a Permit to Construct or as a Permit to Operate which shall be posted in a conspicuous place at or near the machine, equipment, or other article for which the permit was issued.

(Effective May 26, 1996)

2401-71-23 Falsifying or Altering Permits

No person shall deface, alter, forge, counterfeit, or falsify a Permit to Construct or a Permit to Operate.

(Effective May 26, 1996)

MONITORING, RECORDS, AND REPORTING

2401-71-24 Monitoring, Record Keeping and Reporting Required

The Chairman may require the owner or operator of any air contaminant source to install, use and maintain such monitoring equipment, sample such emissions in accordance with methods as the Chairman shall prescribe, establish and maintain such records, and make such periodic emission reports as required in Section 2401-71-25.

(Effective May 26, 1996)

2401-71-25 Stationary Source Emission Report Procedures

(A) The owner or operator of any stationary source shall, upon notification from the Chairman, maintain

records of the nature and amounts of emissions from such source and/or any other information as may be deemed necessary by the Chairman to determine whether such source is in compliance with applicable emission limitations or other requirements.

(B) The information recorded shall be summarized each month and be submitted within fifteen (15) days after the end of the month, except that the initial reporting period shall start on the date the Chairman issues notification of the record-keeping requirements.

(C) Information recorded by the owner or operator and copies of the summarizing reports submitted to the Chairman shall be retained by the owner or operator for two years after the date on which the pertinent report is submitted.

(D) Emission data obtained from owners or operators of stationary sources will be correlated with applicable emission limitations and other requirements and will be made available to the public during normal business hours at the Environmental Quality Protection Board Office.

(Effective May 26, 1996)

2401-71-26 Shutdown for Maintenance of Air Pollution Control Equipment

In the case of shutdown of air pollution control equipment for necessary scheduled maintenance, the intent to shutdown such equipment shall be received by the Chairman in writing at least twenty-four (24) hours prior to the planned shutdown. Such prior notice shall include, but is not limited to the following:

(A) Identification of the specific facility to be taken out of service as well as its location and permit number;

(B) The expected length of time that the air pollution control equipment will be out of service;

(C) The type and amount of emissions of air contaminants likely to occur during the shutdown period;

(D) Measures such as the use of off-shift labor and equipment that will be taken to minimize the length of the shutdown period; and,

(E) The reasons that it would be impossible or impractical to shutdown the source operation during the maintenance period.

(Effective May 26, 1996)

2401-71-27 Malfunction, Breakdown, Shutdown

(A) In the event that any emission source, air pollution control equipment or related facility malfunctions, breaks down or will be shutdown in such a manner as to cause excess emission of air contaminants, it is in violation of these Regulations and subject to prosecution.

(B) In order to enable the Chairman to carry out his statutory duties, the owner or operator of the stationary source is required to furnish the Board with the following information within ten (10) days after the occurrence of excess emissions:

(1) Identification of emission points.

(2) The magnitude of the excess emission.

(3) The identity of the process or control equipment causing excess emissions.

(4) A description of the steps taken by the owner or operator of the subject stationary source to remedy the situation causing the emissions, prevent a recurrence and limit the excess emissions.

(Effective May 26, 1996)

2401-71-28 Compliance with National Ambient Air Quality Standards and Enforcement

Nothing in these Regulations relieves the source of its obligation to attain and maintain any National Ambient Air Quality Standards nor precludes the Chairman from initiating any allowable enforcement actions or remedies.

(Effective May 26, 1996)

SAMPLING AND TESTING METHODS

2401-71-29 Procedures

All sampling and testing shall be made and the results calculated in accordance with procedures approved by the Chairman.

(Effective May 26, 1996)

2401-71-30 Authority to Conduct Tests; Assistance

The Chairman may conduct tests of emissions of air contaminants from any source. Upon request of the Chairman, the person responsible for the source to be tested shall provide assistance as necessary, including personnel, holes in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

(Effective May 26, 1996)

2401-71-31 Buffer Zone

Clear air quality sampling shall be conducted at the boundaries of a buffer zone. The boundaries and dimensions of this buffer zone shall be submitted by the owner or operator on an accurate plot plan of the property and approved by the Chairman. The owner or operator of an existing stationary source must submit this information by July 15, 1980.

(Effective May 26, 1996)

CONTROL OF FUGITIVE DUST

2401-71-32 Control of Fugitive Dust

(A) No person shall cause, allow, or permit the emission of fugitive dust from any source, which violates these Regulations.

(B) No person shall cause or permit the discharge of visible emissions beyond the lot line of the property, or the boundaries of the buffer zone if applicable, on which the emissions originate.

(Effective May 26, 1996)

2401-71-33 Alternate Controls

(A) The Chairman may approve alternate controls other than those specified within these Regulations taken to control any source of fugitive dust upon the written application by the operator, and upon a determination of the adequacy of any such alternate controls.

(B) Applications shall describe the proposed alternate controls and demonstrate that applicable Regulations will not be violated.

(Effective May 26, 1996)

2401-71-34 Processing, Handling, Transportation, and Storage

(A) When dust, noxious gas or vapor, odor or any combination thereof escape from the processing, handling or storage of any material in an amount as to cause a nuisance or to cause or contribute to a violation of any applicable Regulation or Air Quality Standard, the Chairman may order that the source of these emissions be tightly enclosed and that the venting of such enclosure be controlled to the extent necessary to meet these Standards and Regulations. Alternate control measures submitted to the Chairman, in compliance with such orders, shall comply with Section 2401-71-33.

(B) All crushing, aggregate screening and conveying operations of material likely to become airborne shall be enclosed and the venting of such enclosure shall be controlled to the extent necessary to prevent visible emissions or the violation of any Standard or Regulation.

(C) Stockpiles of materials which are likely to become airborne shall be enclosed or the surface of such stockpile stabilized through compacting, sprinkling with water, chemical, or asphalt sealing.

(D) All loads carried by motor vehicles shall be adjusted, secured, covered, contained or otherwise treated so as to prevent loss or spillage of such material and/or the generation of airborne dust.

(Effective May 26, 1996)

2401-71-35 Construction and Sandblasting Operations

(A) All construction operations including but not limited to the clearing, grading or leveling of land, earthmoving, excavation, demolition, or the movement of trucks or constructions equipment over

cleared land or temporary access or haul roads shall water all vehicle travel areas or roads at the site for dust suppression a minimum of the beginning of every two (2) operating hours with a minimum watering rate for each application of 0.5 gallons per square yard, or by other equivalent methods approved by the Chairman as needed to prevent visible emissions or contribute to the violation of applicable Standards or Regulations.

(B) All sandblasting operations which can be conducted within an enclosed area shall be done so and the venting of such enclosure shall be controlled to the extent necessary to prevent visible emission as prohibited by these Standards and Regulations.

(C) All sandblasting which cannot be done within an enclosure shall be conducted using wet sand.

(Effective May 26, 1996)

2401-71-36 Grading and Clearing

(A) Use of vegetation, including planting, mulch or selective retention of natural vegetation, as ground cover, providing windbreaks, sprinkling with water, and covering or compacting the ground surface shall be used to prevent visible emissions or the violation of any Air Quality Standard or Regulation where topsoil has been disturbed during the clearing of land.

(B) No owner, operator, or lessee of any real property in the Republic shall allow disturbed topsoil to remain undeveloped, unplanted, untreated, or otherwise uncovered for a period exceeding two (2) months.

(Effective May 26, 1996)

2401-71-37 Roads and Parking Lots

(A) All roads, road shoulders, and areas used for parking specified in this Section, shall be sealed and maintained so as to prevent the exposure of such surface to wind, water or vehicular travel erosion:

(1) All public and private roads within the Republic which average a vehicular load of one hundred (100) or more vehicle-trips per day.

(2) The road shoulders of all public and private roads within the Republic which average a vehicle load of one hundred (100) or more vehicle-trips per day.

(B) Earth and other erodible material which has been deposited on a sealed vehicular travel surface by trucking, earthmoving equipment, erosion, or landslide shall be promptly removed.

(Effective May 26, 1996)

2401-71-38 Compliance Schedule

The following compliance schedule shall apply to those sources not in compliance with Divisions (A) and (B) of Section 2401-71-34 and Divisions (B) and (C) of Section 2401-71-35 of these Regulations on June 25, 1980:

(A) No later than December 31, 1980 all necessary contracts and/or purchase orders required to attain compliance shall be awarded.

(B) No later than March 31, 1981 construction of all facilities necessary for attaining compliance shall be started.

(C) No later than March 31, 1982 construction of all facilities necessary for attaining compliance shall be completed.

(D) No later than June 30, 1982 compliance with the aforementioned Divisions of these Regulations shall be achieved.

(Effective May 26, 1996)

2401-71-39 Report Regarding Compliance

No later than five (5) working days after the passing of the date for achieving each incremental milestone noted above, each source subject to this schedule shall report to the Chairman regarding the status of compliance with the schedule. Failure to achieve any portion of this schedule or to report on the status of compliance shall make the source liable to enforcement action immediately.

(Effective May 26, 1996)

CONTROL OF OPEN BURNING

2401-71-40 Open Burning Prohibited

No person shall dispose of burnable refuse by open burning, or cause, allow, or permit open burning of refuse including grass, weeds, wire, twigs, branches, insulation, vehicle bodies and their contents, paper, garbage, tires, waste materials, tar products, rubber products, oil, and similar smoke producing materials, within the territorial limits of the Republic of Palau. In areas where no public or commercial refuse collection service is available as of June 25, 1980, open burning of refuse on residential property, or refuse originating from dwelling units on such property shall be allowed until such refuse collection becomes available provided such burning does not violate any existing laws of the Republic.

(Effective May 26, 1996)

2401-71-41 Exceptions

Exceptions from the Section 2401-71-40 prohibition on open burning may be allowed upon application and approval by the Chairman provided the burning is not prohibited by, or is conducted in compliance with, other applicable laws, ordinances, and regulations. Exceptions to conduct open burning under this Section do not excuse a person from the consequences, damages, or injuries which may result therefrom. The following are exceptions for which application may be made:

(A) Fires purposely set for the purpose of prevention of a fire hazard which cannot be abated by any other means;

(B) Fires set for instruction in the method of fighting fires;

(C) Fires for ceremonial and recreational purpose;

(D) The burning of hydrocarbons which must be wasted through the use of atmospheric flares or open burning;

(E) Fires for prevention or control of disease or pests;

(F) Fires for the disposal of dangerous materials, where there is no alternate method of disposal; or,

(G) The burning of trees, brush, grass and other vegetable matter in the clearing of land, right-of-way maintenance operations and agricultural crop burning is permitted under the following conditions:

(1) The location of burning must not be within 500 feet of an occupied residence other than those located on the property on which the burning is conducted;

(2) The burning must not be conducted within 500 feet of any road, except those privately owned and used, and in any event must be controlled so that a traffic hazard is not created;

(3) Oils, rubber or other similar material which produce unreasonable amounts of air contaminants may not be burned;

(4) The burning shall be performed between 9:00 AM and one hour before sunset;

(5) Weather conditions within the vicinity of the burning will allow good and proper diffusion and dispersion of air pollutants;

(6) The piles of materials to be burned shall be of such size that the burning will be completed within the designated times given in 2401-71-41(G)(4);

(7) The moisture content and composition of material to be burned shall be favorable to good burning which will minimize air pollution; and,

(8) The starter fuel and materials to be ignited shall not emit excessive visible emissions when burned.

(Effective May 26, 1996)

2401-71-42 Preparation of Food

Nothing in Sections 2401-71-40 and 2401-71-41 shall be interpreted to prohibit or make unlawful the construction and use of barbecue pits, grills, or outdoor fire places for the preparation of food for consumption by individuals, nor shall any permit from the Chairman be required therefore.

(Effective May 26, 1996)

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

2401-71-43 General

(A) The U.S. Environmental Protection Agency Regulations on Standards of Performance for New Stationary Sources (40 CFR, Part 60) designated in Section 2401-71-44 are incorporated by reference as they exist on the date of promulgation by the Board

into those Regulations as amended by the word or phrase substitutions given in Section 2401-71-45.

(B) In the event of any conflict between the Regulations contained in Sections 2401-71-43 through 2401-71-45, inclusive, and Regulations contained in other Sections, the Regulations of Sections 2401-71-43 through 2401-71-45, inclusive, will take precedence for standards of performance for new stationary sources, unless the existing Regulations are more stringent.

(C) For purposes of Sections 2401-71-43 through 2401-71-45, inclusive, the definitions listed in Section 60.2 Subpart A, Part 60, Title 40 of the Code of Federal Regulations will apply.

(Effective May 26, 1996)

2401-71-44 Designated Standards of Performance

(A) Subpart I - Asphalt Concrete Plants (drying; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring and storing mineral filler; systems for mixing asphalt concrete; and the loading, transfer and storage systems associated with emission control systems.

(B) Subpart K - Storage vessels for Petroleum Liquids (storage vessels with a capacity greater than 40,000 gallons).

(Effective May 26, 1996)

2401-71-45 Word and Phrase Substitutions

In all the standards designated in Section 2401-71-44 substitute:

(A) Chairman for Federal EPA Administrator.

(B) Environmental Quality Protection Board for US Environmental Protection Agency.

(Effective May 26, 1996)

CONTROL OF PARTICULATE EMISSION

2401-71-46 Process Industries

(A) No person shall cause, allow, or permit the emission of particulate matter in any one hour from any process industry in excess of the amount shown in Table I for the process weight rate allocated to such source.

(B) Process weight per hour is the total weight of all materials introduced into any specification process that may cause any discharge of particulate matter. Solid fuel charges will be considered as part of the process weight; but liquid and gaseous fuels and combustion air will not. For a periodic or batch operation, the process weight per hour will be derived by dividing the total process weight by the number of hours in one complete operation from the beginning of any given process to the completion thereof, excluding any time during which the equipment is idle. For a continuous operation, the process weight per

hour will be derived by dividing the process weight for a typical period of time.

(C) Where the nature of any process or operation or the design of any equipment is such as to permit more than one interpretation of this Regulation, the interpretation that results in the minimum value for allowable emission shall apply.

(D) For purposes of this Regulation, the total process weight from all similar process units at a plant or premises shall be used for determining the maximum allowable emission of particulate matter that passes through a stack or stacks.

(Effective May 26, 1996)

Process Weight Rate (lbs/hr)	Emission Rate (lbs/hr)
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

Interpolation of the data in Table 1 for the process weight rates up to 60,000 lbs/hr. shall be accomplished by the use of the equation:

$$E = 3.59 P^{0.62} \quad P < 30 \text{ tons/hr.}$$

and interpolation and extrapolation of the data for process weight rates in excess of 60,000 lbs/hr. shall be accomplished by use of the equation:

$$E = 17.31 P^{0.16} \quad P > 30 \text{ tons/hr.}$$

Where: E = Emissions in pounds per hour.
P = Process weight rate in tons per hour.

2401-71-47 Fuel Burning Installations

No source shall cause, allow, or permit the emission of particulate matter resulting from the combustion of fuel in excess of the quantity set forth in Table 2.

(Effective May 26, 1996)

CONTROL OF PARTICULATE EMISSION FROM INCINERATOR: DESIGN AND OPERATION

2401-71-48 Application

These Regulations apply to any incinerator used to dispose of refuse by burning or the processing of reclaimable material by burning. Notwithstanding definitions in other Regulations, as used in Sections

2401-71-48 through 2401-71-51, inclusive, the word "refuse" includes garbage, rubbish, commercial waste, hospital waste, leaves, reclaimable material, and agricultural wastes. The word "incinerator", as used in Sections 2401-71-48 through 2401-71-51, inclusive, includes incinerator, and other devices or structures used to burn refuse or to process refuse by burning.

(Effective May 26, 1996)

**TABLE 2
PARTICULATE EMISSION ALLOWABLE BASED
ON COMBUSTION OF FUEL:**

Operating Rate in Million BTU's per hour	Maximum allowable emissions of particulate in pounds per million BTU's heat input
5	0.07
10	0.60
250	0.28
500	0.24
1,000	0.21

For heat input greater than 1 million BTU per hour but less than 1000 million BTU per hour, the allowable emissions shall be calculated using the following equation:

$$Y = 1.02X - 0.231$$

Where: X = Operating rate in million BTU's per hour.
Y = Allowable rate of emission in pounds per million BTU's.

2401-71-49 Prohibitions

- (A) No person shall cause or permit to be emitted into the open air from any incinerator, particulate matter in the exhaust gases to exceed 0.20 pounds per 100 pounds of refuse burned.
- (B) No residential or commercial single-chamber incinerator shall be used for the burning of refuse beyond December 25, 1981.
- (C) Incinerators shall be designed and operated in such manner as is necessary to prevent the emission of objectionable odors.
- (D) No person shall burn or permit the burning of refuse in any installation which was designed for the sole purpose of burning fuel.

(Effective May 26, 1996)

2401-71-50 Emission Tests and Burning Capacities

- (A) Emission tests shall be conducted at maximum burning capacity of the incinerator.
- (B) The burning capacity of an incinerator shall be the manufacturer's or designer's guaranteed maximum rate or such other rate as may be determined by the Chairman in accordance with good engineering practices. In cases of conflict, the determination made by the Chairman shall govern.

(C) For the purposes of these Regulations, the total of the capacities of all furnaces within one system shall be considered as the incinerator capacity.

(Effective May 26, 1996)

2401-71-51 Multiple Chamber-Cylinders Required

All new incinerators and all existing incinerators shall, by December 25, 1981 be multiple-chamber incinerators, provided that the Chairman may approve any other type of incinerator if it is demonstrated such design provides equivalent performance.

(Effective May 26, 1996)

CONTROL OF VISIBLE EMISSIONS OF PARTICULATES FOR STATIONARY SOURCES

2401-71-52 Visible Emission Restrictions for Stationary Sources

- (A) No person shall continuously discharge into the atmosphere from any single source of emission whatsoever any air contaminant of a shade of density equal to or darker than that designated as No. 1 on the Ringlemann Chart of 20 percent opacity.
- (B) No person may discharge into the atmosphere from any single source of emission, for a period or periods adding up to more than 3 minutes in any 60 minutes, air contaminants of a shade of density darker than No. 3 on the Ringlemann Chart, or 60 percent opacity.

(Effective May 26, 1996)

CONTROL OF ODORS IN CLEAN AIR

2401-71-53 Prohibition on Odors

- (A) No person shall discharge into the atmosphere, or cause to be discharged into the atmosphere, from any source whatsoever any amount of odorous or gaseous emission, material, or air contaminant of any kind or description, which is injurious or detrimental to health or safety, or which in any way unduly interferes with or prevents the comfortable enjoyment of life or property.
- (B) An odor occurrence shall be deemed a violation per se when a complaint is received and verified by the Chairman. The Chairman shall deem the odor occurrence a violation per se if he is able to make two odor measurements within one period, these measurements being separated by at least fifteen (15) minutes. An odor measurement shall consist of a detectable odor after the odorous air has been diluted with seven (7) volumes of odor-free air as determined by a scentometer as manufactured by the Barneby-Cheney Company or any other instrument, device, or techniques designated by the Chairman as producing equivalent results.

(Effective May 26, 1996)

2401-71-54 Exceptions

The odor of growing vegetation, chemical fertilizers and insecticides, shall not be considered objectionable within the meaning of these Regulations.

(Effective May 26, 1996)

CONTROL OF SULFUR DIOXIDE EMISSIONS

2401-71-55 Sulfur Emissions Limit

No person shall cause or permit the burning of fuel with a sulfur content greater than 3.14% at any time and in no event shall the average over the immediate past twelve month period, including the latest month's reading, exceed 2.84% by weight provided the stacks are of sufficient height, as determined by modeling techniques approved by the Chairman, to prevent aerodynamic downwash and provide for good dispersion of emissions.

(Effective May 26, 1996)

2401-71-56 Intermittent Control Strategy

An intermittent control strategy shall be required of any stationary source when winds blow to populated areas.

(Effective May 26, 1996)

2401-71-57 Monitoring and Sampling of SO₂

If compliance with these Standards is to be accomplished by means of removal of sulfur dioxide from the stack gases, the owner or operator of the source must provide for the necessary monitoring equipment, and sample such emissions in accordance with methods approved by the Chairman.

(Effective May 26, 1996)

MOTOR VEHICLE POLLUTION CONTROL

2401-71-58 Prohibitions

(A) No person shall import, operate, lease or sell, any new motor vehicle or new motor vehicle engine in the Republic, unless such new motor vehicle or new motor vehicle engine complies with US EPA Regulations on Control of Air Pollution from New Motor Vehicles and New Motor Vehicle Engines.

(B) No person shall intentionally remove, alter or otherwise render ineffective or inoperative, exhaust emission control, crank case ventilation or any other air pollution control device or system which has been installed on a motor vehicle or stationary internal

combustion engine as a requirement of any Law or Regulation.

(C) No person shall operate a motor vehicle or other internal combustion engine originally equipped with air pollution devices or systems as required by any Law or Regulation, unless such devices or systems are in place and in operating conditions.

(D) No person shall cause or permit the emission of visible air contaminants from gasoline-powered motor vehicles for longer than five (5) consecutive seconds.

(E) No person shall cause or permit the emission of visible air contaminants from diesel-powered motor vehicles of a shade of density equal to or darker than that designated as No. 1 on the Ringlemann Chart, or 20 percent opacity, for longer than five (5) consecutive seconds.

(F) No person shall cause or permit the use of any motor vehicle which becomes mechanically deficient so as to cause the emission of visible air contaminants.

(Effective May 26, 1996)

2401-71-59 Penalties

(A) The owner of any motor vehicle in violation of Section 2401-71-58 shall be subject to prosecution, however, penalties shall not exceed \$50.00 per day of each violation.

(B) In addition to any other remedies available to the Board, the failure to comply with Section 2401-71-58 shall subject the vehicle owner to suspension or cancellation of the registration inspection sticker for the vehicle.

(Effective May 26, 1996)

2401-71-60 Waiver

The violator can apply for waiver of prosecution by the Chairman, not to exceed forty-five (45) days in duration. To be considered for a waiver, the violator shall immediately notify the Chairman of the deficiency, and provide a statement giving all pertinent facts, including the reasons for the violation, the attempts made to correct the deficiency, any difficulties encountered correcting the situation, and the estimated date of correction of the deficiency.

(Effective May 26, 1996)

NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS

2401-71-61 General

(A) The US Environmental Protection Agency Regulations on National Emission Standards for Hazardous Air Pollutants (40 CFR, Part 61) designated in Section 2401-71-62 are incorporated by reference as they exist on the date of adoption by the Board into these Regulations as amended by the

word or phrase substitutions given in Section 2401-71-63.

(B) In the event of any conflict between the Regulations contained in Sections 2401-71-61 through 2401-71-63, inclusive and Regulations contained in other Sections, the Regulations of Sections 2401-71-61 through 2401-71-63, inclusive will take precedence for National Emission Standards for Hazardous Air Pollutants, unless existing Regulations are more stringent.

(C) For purposes of this Section, the definitions listed in Section 61.02 Subpart A, Part 61, Title 40, of the Code of Federal Regulations will apply.

(Effective May 26, 1996)

2401-71-62 Designated Emission Standards

- (A) Subpart B - Asbestos.
- (B) Subpart C - Beryllium.
- (C) Subpart E - Mercury
- (D) Subpart F - Vinyl Chloride.

(Effective May 26, 1996)

2401-71-63 Word and Phrase Substitutions

In all of the standards designated in Section 2401-71-62, substitute:

- (A) Chairman for Federal EPA Administrator.
- (B) Environmental Quality Protection Board for US Environmental Protection Agency.

(Effective May 26, 1996)

AIR POLLUTION EMERGENCIES

2401-71-64 Purpose

Notwithstanding any other provision of the Air Pollution Control Regulations, Sections 2401-71-64 through 2401-71-69, inclusive, of these Regulations are designated to prevent the excessive build-up of air contaminants during air pollution episodes, thereby preventing the occurrence of an emergency due to the effects of these contaminants on the health of the public.

(Effective May 26, 1996)

2401-71-65 Episode Criteria

(A) Conditions justifying the proclamation of an air pollution alert, air pollution warning, or air pollution emergency shall be deemed to exist whenever the Chairman determines that the accumulation of air contaminants in any place is attaining or has attained levels which could, if such levels are sustained or exceeded, lead to a threat to the health of the public.

(B) In making a determination of the existence of an episode, the Chairman will be guided by any forecast by an appropriate agency predicting or indicating wind

direction, speed, or other weather conditions which may result in the attainment of episode level concentrations of air contaminants in any human access area.

(Effective May 26, 1996)

2401-71-66 Episode Categories

(A) "Alert" The Alert level is that concentration of pollutants at which first stage control action is to begin. An Alert will be declared when:

(1) Any one of the following levels is reached at any monitoring site:

- (a) SO₂: 800 ug/m³(0.3ppm), 24-hour average;
- (b) Particulate: 3.0 COHs or 375ug/m³, 24 hour average;
- (c) SO₂ and particulate combined: product of SO₂ ppm, 24-hour average, and COHs equal to 0.2 or product of SO₂ ug/m³, 24-hour average, and particulate ug/m³, 24 hour average equal to 65 x 10³;
- (d) CO: 17 mg/m³(15ppm)₃, 8-hour average;
- (e) Oxidant (O₃): 200 ug/m³(0.1ppm), 1-hour average;
- (f) NO₂: 1130 ug/m³(0.6ppm), 1-hour average; 282 ug/m³(0.15ppm), 24-hour average; and,

(2) Weather conditions are such that this condition can be expected to continue for twelve (12) or more hours.

(B) "Warning." The Warning level indicates that air quality is continuing to degrade and that additional abatement actions are necessary. A Warning will be declared when:

(1) Any one of the following levels is reached at any monitoring site:

- (a) SO₂: 1,600 ug/m³(0.6ppm), 24-hour average;
 - (b) Particulate: 5.0 COHs or 625 ug/m³, 24-hour average;
 - (c) SO₂ and particulate combined: product of SO₂ ppm, 24-hour average and COHs equal to 0.8 or product of SO₂ ug/m³, 24-hour average and particulate ug/m³, 24-hour average equal to 261 x 10³;
 - (d) CO: 34 mg/m³(30ppm), 8-hour average;
 - (e) Oxidant (O): 800 ug/m³(0.4), 1-hour average;
 - (f) NO₂: 2,260 ug/m³(0.4ppm), 24-hour average; and,
- (2) Weather conditions are such that this condition can be expected to continue for twelve (12) or more hours.

(C) "Emergency." The Emergency level indicates that air quality is continuing to degrade to a level that should never be reached and that the most stringent actions are necessary. An Emergency will be declared when:

(1) Any one of the following levels is reached at any monitoring site:

- (a) SO₂: 2,100 ug/m³(0.8ppm), 24-hour average;
- (b) Particulate: 7.0 COHs or 875 ug/m³, 24-hour average;
- (c) SO₂ and particulate combined: product of SO₂ ppm, 24-hour average and COHs equal to 1.2 or product of SO₂ ug/m³, 24-hour average and

particulate ug/m³, 24 hour average equal to 393 x 103;
(d) CO: 46 mg/m³(40ppm), 8-hour average;
(e) Oxidant (O₃): 1,200 ug/m³(0.6ppm), 1-hour average;
(f) NO₂: 3,000 ug/m³(1.6ppm), 1-hour average; 750 ug/m³(0.4ppm), 24-hour average; and,
(2) Weather conditions are such that this condition and be expected to continue for twelve (12) or more hours.

(Effective May 26, 1996)

2401-71-67 Episode Termination

Episodes will be terminated when weather conditions are such that clean air concentrations of air contaminants in affected human access areas fall below episode levels and the appropriate agency forecast predicts these non-episode conditions will continue for twenty-four (24) or more hours.

(Effective May 26, 1996)

2401-71-68 Extrapolation Authorized

Nothing in these Regulations shall be interpreted to prevent or invalidate the extrapolation of a pollutant concentration based on a shorter sampling period to an equivalent concentration for the time period specified in the Standards when existing atmospheric and wind conditions are not expected to change as to lessen pollution levels. This extrapolation shall be used to forecast the possibility of an episode to initiate corrective action.

(Effective May 26, 1996)

2401-71-69 Emission Reduction Plan

After the issuance of an episode forecast or at any episode level, the Chairman shall take any of the actions listed below and any others he deems necessary to reduce air pollution below episode levels and to protect the public health and welfare:
(A) Prohibit or limit the emission of any air contaminant contributing to the episode condition.
(B) Notify sources having contingency plans approved by the Board, to follow the provisions of their plans.

(Effective May 26, 1996)

APPEAL AND CIRCUMVENTION

2401-71-70 Appeal

Any person aggrieved by a decision of the Chairman, may appeal to the Board within thirty (30) days after notification of the Chairman's decision.

(Effective May 26, 1996)

2401-71-71 Circumvention

No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant which would otherwise violate these Regulations. This provision does not prohibit recycling, burning as fuel or otherwise further processing a material which would violate an emission Regulation if released to the atmosphere, so long as the facility in which the material is used does not violate applicable emission Regulations.

(Effective May 26, 1996)

MISCELLANEOUS PROVISIONS

2401-71-72 Severability

If any provision of these regulations or the application of any provision of these regulations to any person or circumstance is held invalid, the application of such provision to other persons or circumstances and the remainder of these regulations shall not be affected thereby.

(Effective May 26, 1996)

2401-71-73 Repealer

The regulations contained herein shall replace the Republic of Palau Environmental Quality Protection Board's Air Pollution Control Standards and Regulations currently in effect in the Republic of Palau.

(Effective May 26, 1996)

2401-71-74 Protected Areas

*All activities subject to the provisions of this Chapter shall comply with the terms, conditions, provisions and management plans for any National, State or traditional conservation area, preserve or protected area as established by law.**

**(Amendment Effective March 12, 1999)*

CHAPTER 2401-81 OZONE LAYER PROTECTION REGULATIONS

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GENERAL PROVISIONS

2401-81-01 Purpose

These Ozone Layer Protection Regulations (“Regulations”) are to govern the import, export, sale, and manufacture of ozone depleting substances and products containing them in the Republic of Palau, in accordance with the Republic’s commitments under the Montreal Protocol on Substances that Deplete the Ozone Layer and the Vienna Convention for the Protection of the Ozone Layer.

2401-81-02 Authority and Effective Date

These Regulations are promulgated by the Republic of Palau Environmental Quality Protection Board (the “EQPB”) pursuant to the authority granted it by the Republic of Palau Environmental Quality Protection Act, RPPL 1-58 (24 PNC § 100, *et seq.*). These regulations shall take effect thirty (30) days after approval by the President of the Republic of Palau, in accordance with 6 PNC § 127.

2401-81-03 Definitions

(A) The following words and terms, when used in these Regulations, shall have the following meanings unless the context clearly indicates otherwise:

- (1) “Act” means the Republic of Palau Environmental Quality Protection Act;
- (2) “Aerosol spray” and “aerosol” means any substance packed under pressure in a container with

a device for releasing it directly into the atmosphere as a foam or fine spray, or solid or liquid stream;

(3) “Board” or “EQPB” means the Republic of Palau Environmental Quality Protection Board or its authorized representative;

(4) “Bulk” in reference to any controlled substance, a. means any controlled substance whether alone or in a mixture that is in a non-processed form;

b. includes any controlled substance that is acquired in a non-processed form, whether alone or in a mixture, that has been recovered, cleaned (by filtering or drying) or reclaimed (by filtering, drying, distillation or chemical treatment);

c. includes any controlled substance that is in a container for the purposes of storage or transport of the substance, but

d. excludes any controlled substance that is in a manufactured product or use system;

(5) “Carbon tetrachloride” means the substance specified in Part IV of the Appendix;

(6) “CFC” means any substance specified in Part I and Part III of the Appendix;

(7) “Complying country” means a country that is either a. a party to the Montreal Protocol; or

b. a country that has been determined, in accordance with the Montreal Protocol, to be a country that is in full compliance with Articles 2, 2A to 2E, and Article 4 of the Protocol;

(8) “Controlled substance” means any substance whether pure or in a mixture and includes the isomers of any such substance listed in the Appendix;

(9) “Consumption” means the amount of each controlled substance that is produced in Palau, plus the amount imported, minus the amount exported to Parties to the Montreal Protocol;

(10) “Export” or “Exportation” means to take or cause to be taken out of the Republic;

(11) “Goods” means, unless the context requires otherwise, any product made with or containing any controlled substance, but does not include any bulk controlled substance.

(12) “Halon” means any substance specified in Part II of the Appendix;

(13) “HBFC” means any substance specified in Part VI of the Appendix;

(14) “HCFC” means any substance specified in Part VII of the Appendix;

(15) “Import” or “Importation” means to bring or cause to be brought into the Republic;

(16) “Methyl bromide” means the substance specified in Part VIII of the Appendix;

(17) “Methyl chloroform” means the substance specified in Part V of the Appendix;

(18) “Montreal Protocol” and “the Protocol” means the Montreal Protocol on Substances that Deplete the Ozone Layer, a protocol to the Vienna Convention for the Protection of the Ozone Layer, and includes any amendments to the Protocol, or adjustments or substitutions adopted thereto to which the Republic of Palau is or will become bound;

(19) "Officer" means a designated employee of the EQPB;

(20) "Ozone depleting potential" or "ODP" means the steady-state ozone reduction for each unit mass of gas emitted into the atmosphere relative to that for a unit mass emission of CFC-11, as listed in the relevant Annexes to the Protocol and as specified in the Appendix;

(21) "Party" or "Parties" unless otherwise defined in text, means States or regional economic integration organizations who have ratified, approved, accepted, or acceded to the United Nations Vienna Convention for the Protection of the Ozone Layer and any protocol or amendments to any protocol thereto;

(22) "Person" means the Republic of Palau, a state, a political subdivision, a public or private institution, corporation, partnership, joint venture, association, firm, or company organized or existing under the laws of the Republic or any state or country, a lessee or other occupant or property, or an individual, singly or as a group;

(23) "Plastic foam" means any plastics in cellular mass which are formed with the use of any gas or volatile liquid introduced into liquid plastic to make bubbles;

(24) "Pre-shipment applications" mean any treatments applied directly preceding and in relation to export, to meet the phytosanitary or sanitary requirements of the importing country, or the existing phytosanitary or sanitary requirements of the exporting country;

(25) "President" means the President of the Republic of Palau;

(26) "Quarantine applications" mean any treatments to prevent the introduction, establishment or spread of quarantine pests (including diseases), or to ensure their official control;

(27) "Sale" means every method of disposition for valuable consideration, including barter, and includes

- a. the disposition to an agent for sale on consignment;
- b. offering for sale or attempting to sell, or receiving or having in possession for sale, or exposing for sale, or sending or delivering for sale, or causing or permitting any of these things to be done; or
- c. disposal by way of lottery, raffle or game of chance;

and

(28) "Solvent" means any aqueous or organic product designed to clean a component or assembly by dissolving the contaminants present on its surface;

(29) "Use System" means any container, vessel or piece of equipment containing a controlled substance whereby the mere dispensing of the product from the container, vessel or piece of equipment constitutes the intended use of the substance;

(30) "Vienna Convention" means the Vienna Convention for the Protection of the Ozone Layer, and includes any amendments to the Vienna Convention, or adjustments or substitutions adopted thereto to which the Republic of Palau is or will become bound.

(B) Words used in these Regulations shall have the same meaning as is given to them in the Vienna Convention or the Montreal Protocol, unless a contrary intention appears.

PROHIBITIONS RELATING TO CONTROLLED SUBSTANCES

2401-04 Prohibitions on Importation of Bulk Controlled Substances

(A) The following bulk controlled substances cannot be imported into the Republic under any circumstances:

(1) any bulk CFC specified in Part III of the Appendix, or

(2) any bulk HBFCs specified in Part VI of the Appendix;

(B) The following bulk controlled substances cannot be imported into the Republic under any circumstances except pursuant to a permit:

(1) any bulk CFCs, halons, carbon tetrachloride and methyl chloroform, as specified in Parts I, II, IV, and V of the Appendix;

(2) any bulk methyl bromide, as specified in Part VII of the Appendix; and

(3) any bulk hydrochlorofluorocarbons, as specified in Part VIII of the Appendix, whether alone or in a mixture.

2401-81-05 Prohibitions on the Importation of Certain Goods Containing Controlled Substances

(A) Any dry-cleaning machine that contains or is designed to use any controlled substance as a solvent cannot be imported into the Republic under any circumstances.

(B) Any aerosol or fire extinguisher that contains any controlled substance cannot be imported into the Republic except where its use is necessary for human health as determined by the Board and pursuant to a permit.

(C) The following goods containing controlled substances cannot be imported under any circumstance except pursuant to a permit:

(1) Any aerosol spray containing any controlled substance other than methyl bromide;

(2) Any fire extinguisher that contains any controlled substance; and

(3) any dehumidifiers, refrigerators, freezers, air-conditioners, supermarket display cases, heat pumps and water coolers that contains any CFC listed in the Appendix,

(4) any air-conditioning or refrigeration units whether fitted to a vehicle or as mechanical components intended for use in or on a vehicle and which contain CFCs at the time they are imported into the Republic.

(D) The following goods if they contain any controlled substance (other than HCFC or methyl bromide) cannot be imported under any circumstance from a non-complying country:

(1) Automobile and truck air conditioning units (whether incorporated in vehicles or not);

- (2) Refrigerators;
- (3) Freezers;
- (4) Dehumidifiers and domestic and commercial refrigeration;
- (5) Air conditioning and heat pump units;
- (6) Ice machines and water coolers;
- (7) Aerosol products (except medical aerosols);
- (8) Portable fire extinguisher;
- (9) Insulation boards, panels and pipe covers; and
- (10) Pre-polymers (a reactive mixture of isocyanate and polyoll to which chlorofluorocarbons are added to make rigid plastic foams).

(E) Regulation 5 shall not apply to any:

- (1) imported controlled substance, or any goods containing any controlled substance, that is or are used only as packaging or as part of the packaging for any other imported goods; or
- (2) imported goods that are personal or household effects in respect of which the EQPB is satisfied that they are not intended for any other person, or for gift, sale, or exchange, provided that no bulk controlled substance may be considered a personal effect; or
- (3) any substances or goods that are on board, or form part of, any foreign ship or aircraft unless they are, while in the Republic of Palau, removed from that ship or aircraft.

a. For the purposes of this Regulation a foreign ship or aircraft is any ship or aircraft except:

- 1. a ship registered in Palau as set forth in 7 PNC § 105; or
- 2. an aircraft registered in Palau as set forth in 8 PNC §501(d).

(F) Nothing in this Part of this Regulation shall prevent an exemption being granted in respect of the importation or exportation of any substances or goods that are imported into the Republic only for the purpose of being transhipped into another ship or aircraft for carriage to a destination that is outside the territorial limits of the Republic.

2401-81-06 Prohibitions on Exportation

The exportation from the Republic of Palau of any bulk controlled substance specified in Part I – VIII of the Appendix to a non-complying country is prohibited.

2401-81-07 Prohibitions on Manufacture

The following substances or goods shall not be manufactured within the Republic under any circumstances:

- (1) any controlled substance;
- (2) any aerosol spray that contains any controlled substance other than methyl bromide;
- (3) any dry-cleaning machine that contains or is designed to use any controlled substance as a solvent; and
- (4) any fire extinguisher that contains any controlled substance.

2401-81-08 Prohibitions on Sales

This part takes affect six months after the adoption of these Regulations. Excluding the sale of secondhand goods, the following goods shall not be sold except pursuant to a permit issued pursuant to Part III:

- (1) any goods specified in Regulation 5; and
- (2) any fire extinguisher that contains any controlled substance listed in Parts I–VI of the Appendix.

2401-81-09 Prohibition on releasing a controlled substance to the atmosphere

No person may, in the course of installing, operating, servicing, dismantling or otherwise handling any equipment used in relation to any controlled substance, willfully or negligently permit any controlled substance to be discharged into the atmosphere.

PERMITS

2401-81-10 Quarantine and pre-shipment permits

The EQPB may issue a Quarantine and Pre-shipment Permit under this Regulation in relation to the importation of methyl bromide where it is satisfied that the methyl bromide is to be used for legitimate quarantine or pre-shipment applications and that the Republic of Palau will not thereby be in breach of its obligations under the Vienna Convention or the Montreal Protocol.

2401-81-11 Medical permits

The EQPB may issue a Medical Permit under this Regulation in relation to the importation of any product containing a controlled substance, where it is satisfied that it has a medical application relating to the protection of life or health and that the Republic of Palau will not thereby be in breach of its obligations under the Vienna Convention or the Montreal Protocol.

2401-81-12 Human Health or Safety Permits

The EQPB may issue a Human Health or Safety Permit under this Regulation in relation to the importation of any bulk controlled substance or goods containing any CFC, halon, methyl chloroform, or carbon tetrachloride where it is satisfied, that the bulk controlled substance or good is necessary for human health or safety; that there are no alternative products available to be used instead of the ozone depleting substance or goods; and that the Republic of Palau will not thereby be in breach of its obligations under the Vienna Convention or the Protocol.

2401-81-13 General permits

(A) The EQPB may issue a General Permit under this Regulation permitting the importation of a controlled substance or the sale of goods containing a controlled substance in a specified calendar year, if it is satisfied that the Republic of Palau will not thereby be in breach of its obligations under the Vienna Convention or the Montreal Protocol.

(B) When a General Permit relates to any CFC's, halon, methyl chloroform, carbon tetrachloride or methyl bromide for an application other than quarantine and pre-shipment fumigation, it shall cease to apply on 1 January 2006, or on such earlier date as is specified in the permit.

2401-81-14 Permit Application

(A) Any person engaging in an activity which requires a permit shall make an application for a permit to the EQPB on a form approved from time to time by the Board.

(B) A non-refundable fee of \$100.00 shall accompany each application, and additional fees as may be determined from time to time by the EQPB to be assessed to the person applying for the permit. No fee is required of the National Government of the Republic of Palau.

(C) The person applying for a permit shall provide any information, or further information, required by the EQPB.

2401-81-15 Permit Transfer

A permit shall not be transferable, whether by operation of law or otherwise, either from one person to another, or from one substance to another.

2401-81-16 Permit Limitations

(A) Any permit shall be subject to such conditions as may be imposed by the EQPB, including without limitation any condition requiring compliance with any approval, permission, license or accreditation available in another country or in the Republic of Palau, or by a Decision by the Parties relating to any controlled substance, any equipment used in relation to a controlled substance, or the manner in which a controlled substance may be used.

(B) All imports made under any permit shall remain subject to all other Acts of Government. The granting of a permit under these Regulations shall not relieve the holder of the permit from complying with all other laws of the Republic of Palau.

2401-81-17 Permit Duration

Each permit shall be valid for a period of one year, commencing on the date of issuance unless earlier suspended or revoked by the Board. Application for renewal shall be made to the EQPB for subsequent years, and may be granted with or without conditions.

2401-81-18 Permit Suspension or Revocation, Rejection, and Appeal

(A) A permit may be suspended or revoked by the Board for any violation of these Regulations whether committed by the permit holder or an employee thereof.

(B) An application for a permit may be rejected by the Board if any information provided is false or misleading.

(C) Any such violation during the one (1) year preceding the date of application for a permit may serve as grounds for rejection of same.

(D) Any person whose permit has been suspended or revoked, or whose application has been rejected may appeal to the Board to set aside such suspension, revocation, or rejection.

2401-81-19 Reporting

(A) A permit holder shall submit a report to the EQPB by the thirty-first (31st) of January of each year specifying all imports, exports and receipts of any controlled substances or goods for the previous year, and any other matter that the EQPB may from time to time require.

(B) Any person who exports any bulk controlled substance shall, within 14 days after the exportation, notify the EQPB in writing and shall give particulars of the substance exported, the date and amount of the export, and its destination.

ENFORCEMENT

2401-81-20 Right of Entry

For purposes of enforcing the provisions of these regulations, the EQPB is authorized to enter any establishment or other place where controlled substances are stored, held for distribution, sale or use, or used for the purposes of:

(1) Obtaining information, making inspections, inspecting or copying records, or plans required to be made and maintained;

(2) Collecting samples of any controlled substance, suspected controlled substance, or labeling; or

(3) Surveying, detecting, or investigating any offenses or suspected offenses committed in contravention of these Regulations.

2401-81-21 Detained, Denied, and Impounded Shipments

(A) Any shipment of a controlled substance or goods containing a controlled substance arriving in the Republic before the EQPB has granted a permit allowing its import shall be detained by the Palau Division of Customs and the EQPB notified. The EQPB shall then determine whether to grant a permit,

or to deny the application. The EQPB shall then provide instruction for disposition of the shipment.

(B) All expenses arising from the detention of a shipment due to the failure of the importer to obtain a permit shall be payable by the importer. Failure of the importer to pay assessed costs may result in impoundment and/or denial of a permit, and/or any future application for a permit made by the importer.

(C) Any shipment of a controlled substance or goods containing a controlled substance for which delivery is denied may be disposed of by the EQPB if not exported by the consignee within ninety (90) days of denial of an application for a permit. All expenses for storage, cartage, labor, and shipping shall be payable by the consignee and any default of such payment shall entitle the EQPB to a lien on such goods or substances and the proceeds of sale.

(D) If the owner of an impounded shipment does not satisfy any and all liens against such shipment within ninety (90) days after notification in writing of the amount of said liens, the Board may take effect transfer of ownership of the shipment to the Board for satisfaction of said liens.

2401-81- 22 Stop Sale, Use, and Removal

(A) Whenever any controlled substance or good containing a controlled substance is found by the EQPB, the Board may issue a written or printed "stop sale, use, or removal" order to any person who owns, controls, or has custody of such controlled substance or good containing a controlled substance whenever there is reason to believe on the basis of inspection or tests that:

(1) Such controlled substance or good containing a controlled substance is in violation of the provisions of these regulations; or

(2) Such controlled substance or good containing a controlled substance has been or is intended to be distributed or sold in violation of any of the provisions of these regulations.

(B) After receipt of a "stop sale, use, or removal" order no person shall sell, use, or remove the controlled substance or good containing a controlled substance described in the order except in accordance with the provisions of the order.

2401-81-23 Appeals

Any person aggrieved by a decision of the Board in any case where—

(A) Conditions of a permit or exemption are unsatisfactory for any reason;

(B) An application for permit is declined;

(C) A permit is suspended or revoked; or
(D) When a "Stop Sale, Use, or Removal Order" has been issued—

—may appeal to the Board within ten (10) business days after notification of the Board's decision.

2401-81-24 Procedure for Appeals to the Board

Any person, who wishes to appeal any decision of the Board pursuant to Regulation 23, may do so in writing within ten (10) business days of receiving the decision for which the appeal is being made, or within such time as the Board may allow. The appeal must state the basis for contesting the decision of the Board.

2401-81-25 Decisions to Continue in Force Pending Appeal

Every decision of the Board appealed against under Regulation 23, shall continue in force pending the determination of the appeal, and no person shall be excused from complying with any of the provisions of these regulations on the grounds that an appeal is pending.

PENALTY

2401-81-26 Civil Penalty

Any person who violates these regulations or the terms and conditions of any permit issued hereunder or any order issued hereunder shall for each day of each violation, be subject to a civil penalty of not more than \$10,000 per day of violation.

2401-81-27 Criminal Penalty

In addition to any civil penalties any such person who negligently or willfully violates any provision of these regulations or the terms of any permit issued by the EQPB pursuant to these regulations shall be guilty of a misdemeanor and subject to punishment provided by 24 PNC § 171C.

APPENDIX			
Controlled Substances			
Part I CFCs (Chlorofluorocarbons)			
Chemical Name	Common Name	Chemical Formula	Ozone Depleting Potential
fluorotrichloromethane	CFC-11	CFCl ₃	1.0
difluorodichloromethane	CFC-12	CF ₂ Cl ₂	1.0
trichlorotrifluoromethane	CFC-113	C ₂ F ₃ Cl ₃	0.8
dichlorotetrafluorethane	CFC-114	C ₂ F ₄ Cl ₂	1.0
chloropentafluoroethane	CFC-115	C ₂ F ₅ Cl	0.6
Part II Halons			
Chemical Name	Common Name	Chemical Formula	Ozone Depleting Potential
bromochlorodifluoromethane	halon-1211	CF ₂ BrCl	3.0
bromotrifluoromethane	halon-1301	CF ₃ Br	10.0
dibromotetrafluoroethane	halon-2402	C ₂ F ₄ Br ₂	6.0
Part III Other CFCs (Chlorofluorocarbons)			
Chemical Name	Common Name	Chemical Formula	Ozone Depleting Potential
trifluorochloromethane	CFC-13	CF ₃ Cl	1.0
fluoropentachloroethane	CFC-111	C ₂ FCl ₅	1.0
difluorotetrachloroethane	CFC-112	C ₂ F ₂ Cl ₄	1.0
fluoroheptachloropropane	CFC-211	C ₃ FCl ₇	1.0
difluorohexachloropropane	CFC-212	C ₃ F ₂ Cl ₆	1.0
trifluoropentachloropropane	CFC-213	C ₃ F ₃ Cl ₅	1.0
tetrafluorotetrachloropropane	CFC-214	C ₃ F ₄ Cl ₄	1.0
pentafluorotrichloropropane	CFC-215	C ₃ F ₅ Cl ₃	1.0
hexafluorodichloropropane	CFC-216	C ₃ F ₆ Cl ₂	1.0
heptafluorochloropropane	CFC-217	C ₃ F ₇ Cl	1.0
Part IV Carbon tetrachloride			
Chemical Name	Common Name	Chemical Formula	Ozone Depleting Potential
fluorotrichloromethane	CFC-11	CFCl ₃	1.0
difluorodichloromethane	CFC-12	CF ₂ Cl ₂	1.0
trichlorotrifluoromethane	CFC-113	C ₂ F ₃ Cl ₃	0.8
dichlorotetrafluorethane	CFC-114	C ₂ F ₄ Cl ₂	1.0
chloropentafluoroethane	CFC-115	C ₂ F ₅ Cl	0.6
Part V Methyl chloroform			
Chemical Name	Common Name	Chemical Formula	Ozone Depleting Potential
1,1,1-trichloroethane	methyl chloroform	1,1,1-trichloroethane	0.1
This formula does not refer to 1,1,2-trichloroethane.			

Part VI HBFCs (Hydrobromofluorocarbons)				
Chemical Name	Common Name	Chemical Formula	Number of Isomers	Ozone Depleting Potential
fluorodibromomethane		CH ₂ FBr ₂	1	1.00
difluorobromomethane	HBFC-22B1	CHF ₂ Br	1	0.74
fluorobromomethane		CH ₂ FBr ₄	1	0.73
fluorotetrabromoethane		C ₂ HFBr ₄	2	0.3-0.8
difluorotribromoethane		C ₂ HF ₂ Br ₃	3	0.5-1.8
trifluorodibromoethane		C ₂ HF ₃ Br ₂	3	0.4-1.6
tetrafluorobromoethane		C ₂ HF ₄ Br	2	0.7-1.2
fluorotribromoethane		C ₂ H ₂ FBr ₃	3	0.1-1.1
difluorodibromoethane		C ₂ H ₂ F ₂ Br ₂	4	0.2-1.5
trifluorobromoethane		C ₂ H ₂ F ₃ Br	3	0.7-1.6
fluorodibromoethane		C ₂ H ₃ FBr ₂	3	0.1-1.7
difluorobromoethane		C ₂ H ₃ F ₂ Br	3	0.2-1.1
fluorobromoethane		C ₂ H ₄ FBr	2	0.07-0.1
fluorohexabromopropane		C ₃ HFBr ₆	5	0.3-1.5
difluoropentabromopropane		C ₃ HF ₂ Br ₅	9	0.2-1.9
trifluotetrabromopropane		C ₃ HF ₃ Br ₄	12	0.3-1.8
tetrafluorotribromopropane		C ₃ HF ₄ Br ₃	12	0.5-2.2
pentafluorodibromopropane		C ₃ HF ₅ Br ₂	9	0.9-2.0
hexafluorobromopropane		C ₃ HF ₆ Br	5	0.7-3.3
fluoropentabromopropane		C ₃ H ₂ FBr ₅	9	0.1-1.9
difluorotetrabromopropane		C ₃ H ₂ F ₂ Br ₄	16	0.2-2.1
trifluorobromopropane		C ₃ H ₂ F ₃ Br ₃	18	0.2-5.6
tetrafluorobromopropane		C ₃ H ₂ F ₄ Br ₂	16	0.3-7.5
pentafluorobromopropane		C ₃ H ₃ F ₅ Br	8	0.9-1.4
fluorotetrabromopropane		C ₃ H ₃ FBr ₄	12	0.08-1.9
difluorotribromopropane		C ₃ H ₃ F ₂ Br ₃	18	0.1-3.1
trifluorodibromopropane		C ₃ H ₃ F ₃ Br ₂	18	0.1-2.5
tetrafluorobromopropane		C ₃ H ₃ F ₄ Br	12	0.3-4.4
fluorotribromopropane		C ₃ H ₄ FBr ₃	12	0.03-0.3
difluorodibromopropane		C ₃ H ₄ F ₂ Br ₂	16	0.1-1.0
trifluorobromopropane		C ₃ H ₄ F ₃ Br	12	0.07-0.8
fluorodibromopropane		C ₃ H ₅ FBr ₂	9	0.04-0.4
difluorobromopropane		C ₃ H ₅ F ₂ Br	9	0.07-0.8
fluorobromopropane		C ₃ H ₆ FBr	5	0.02-0.7
Part VII Methyl Bromide				
Chemical Name	Common Name	Chemical Formula	Number of Isomers	Ozone Depleting Potential
(Mono) bromoethane	methyl bromide	CH ₃ Br		0.60

Part VIII HCFCs (Hydrochlorofluorocarbons)				
Chemical Name	Common Name	Chemical Formula	Number of Isomers	Ozone Depleting Potential
fluorodichloromethane	HCFC-21	CHFC _l ₂	1	0.04
difluorochloromethane	HCFC-22	CHF ₂ Cl	1	0.055
fluorochloromethane	HCFC-31	CH ₂ FCl	1	0.02
fluorotetrachloroethane	HCFC-121	C ₂ HFC _l ₄	2	0.01-0.04
difluorotrichloroethane	HCFC-122	C ₂ HF ₂ Cl ₃	3	0.02-0.08
trifluorodichloroethane	HCFC-123	C ₂ HF ₃ Cl ₂	3	0.02-0.06
	HCFC-123	CHCl ₂ CF ₃	-	0.02
tetrafluorodichloroethane	HCFC-124	C ₂ HF ₄ Cl	2	0.02-0.04
	HCFC-124	CHFClCF ₃	-	0.022
fluorotrichloroethane	HCFC-131	C ₂ H ₂ FC _l ₃	3	0.007-0.05
difluorodichloroethane	HCFC-132	C ₂ H ₂ F ₂ Cl ₂	4	0.008-0.05
trifluorochloroethane	HCFC-133	C ₂ H ₂ F ₃ Cl	3	0.02-0.06
fluorodichloroethane	HCFC-141	C ₂ H ₃ FC _l ₂	3	0.005-0.07
		CH ₃ CFCl ₂	-	0.11
difluorochloroethane	HCFC-142	C ₂ H ₃ F ₂ Cl	3	0.008-0.07
		CH ₃ CF ₂ Cl	-	0.065
fluorochloroethane	HCFC-151	C ₂ H ₄ FC _l	2	0.003-0.005
fluorohexachloropropane	HCFC-221	C ₃ HFC _l ₆	5	0.015-0.07
difluoropentachloropropane	HCFC-222	C ₃ HF ₂ Cl ₅	9	0.01-0.09
trifluorotetrachloropropane	HCFC-223	C ₃ HF ₃ Cl ₄	12	0.01-0.08
tetrafluorodichloropropane	HCFC-224	C ₃ HF ₄ Cl ₃	12	0.01-0.09
pentafluorodichloropropane	HCFC-225	C ₃ HF ₅ Cl ₂	9	0.02-0.07
		CF ₃ CF ₂ CHCl ₂	-	0.025
		CF ₂ CICF ₂ CHCIF	-	0.033
hexafluorochloropropane	HCFC-226	C ₃ HF ₆ Cl	5	0.02-0.10
fluoropentachloropropane	HCFC-231	C ₃ H ₂ FC _l ₅	9	0.05-0.09
difluorotetrachloropropane	HCFC-232	C ₃ H ₂ F ₂ Cl ₄	16	0.008-0.10
trifluorotrichloropropane	HCFC-233	C ₃ H ₂ F ₃ Cl ₃	18	0.007-0.23
tetrafluorodichloropropane	HCFC-234	C ₃ H ₂ F ₄ Cl ₂	16	0.01-0.28
pentafluorochloropropane	HCFC-235	C ₃ H ₂ F ₅ Cl	9	0.03-0.52
fluorotetrachloropropane	HCFC-241	C ₃ H ₃ FC _l ₄	12	0.004-0.09
difluorotrichloropropane	HCFC-242	C ₃ H ₃ F ₂ Cl ₃	18	0.005-0.13
trifluorodichloropropane	HCFC-243	C ₃ H ₃ F ₃ Cl ₂	18	0.007-0.12
tetrafluorochloropropane	HCFC-244		12	0.009-0.14
fluorotrichloropropane	HCFC-251		12	0.001-0.01
difluorodichloropropane	HCFC-252		16	0.005-0.04
trifluorochloropropane	HCFC-253		12	0.003-0.03
fluorodichloropropane	HCFC-261		9	0.002-0.02
difluorochloropropane	HCFC-262		9	0.002-0.02
fluorochloropropane	HCFC-271		5	0.001-0.03

* Ozone depleting potential is determined in accordance with the relevant Annexes to the Montreal Protocol where a range of ODPs is indicated, the highest value in that range shall be used for the purposes of the Protocol. The ODPs listed as a single value have been determined from calculations based on laboratory measurements. Those listed as a range are based on estimates and are less certain. The range pertains to an isomeric group. The upper value is the estimate of the ODP of the isomer with the highest ODP, and the lower value is the estimate of the ODP of the isomer with the lowest ODP

