

1.0 EXECUTIVE SUMMARY

1.1 Title of the Proposal

This document is the Public Environmental Report for the Liquid Waste Treatment Facility proposed by N T Resource Recovery at Mendis Road, Hudson Creek, Darwin, N T.

1.2 Name and Address of the Proponent

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NT Resource Recovery is a division of Transpacific Industries Pty Ltd (A.C.N. 010 745 383), the Queensland-registered parent company of a large group of companies involved in waste management in Australia.

1.3 Introduction

NT Resource Recovery, a division of Transpacific Industries Pty Ltd, proposes to build and operate a liquid waste treatment facility at Mendis Road, Hudson Creek with a nominal capacity of 20 ML per year.

The facility will provide waste management support to the port and maritime industries located within the East Arm Control area and the Trade Development Zone and receive, store, treat and despatch non-sewerable liquid wastes from industries within the Darwin region. Such a facility will provide an outlet for industrial wastes and used lubricating oils that have the potential to be serious environmental contaminants.

The by-products of the treatment processes can be reused as in the case of lubricating oils, can be used as a nutrient additive in the case of the biodegradable wastes or co-disposed with general refuse at an approved landfill as a non-hazardous solid waste.

The proposal to build a Liquid Waste Treatment Facility was referred to the Department of Lands, Planning and Environment in November, 1999. The Minister for Lands, Planning and Environment determined that the Project would be assessed as a Public Environmental Review (PER) under the *Environmental Assessment Act*. This PER is submitted to satisfy the Terms of Reference developed by the Department in response to public and internal government reviews.

The PER has found that such a facility will have a minimal environmental impact as an operational facility but will have a significantly beneficial impact on waste management in the region and so limit the potential for environmental damage from inappropriate disposal.

The facility, its operation and products are entirely compatible with the principles of Ecologically Sustainable Development and incorporate the concept of extended producer responsibility.

All potential environmental factors associated with the proposal were identified, for which the environmental objectives, management strategies and outcomes for each factor were tabulated (Table 1.2). Those key environmental factors requiring further investigation and/or discussion in the PER were identified in consultation with the Department of Lands, Planning and Environment.

The focus of this document is to address those key environmental factors which have the potential to cause biophysical or social effects, or which are known to be of public interest as identified in the Terms of Reference for the PER.

1.4 Benefits of the Project

Capital expenditure for the entire project will be in the order of \$2million, of which the major cost items will be process equipment, construction costs and supplies. It is anticipated that the majority of all equipment contracts and supplies will be provided by Northern Territory businesses. The Liquid Waste Treatment Facility will result in the employment of a construction workforce averaging ten (10) people and an initial operational workforce of six to ten employees.

The most significant benefit of the facility will be associated with the regulated processing of some non-sewerable liquid wastes generated in the course of business in a cost effective and efficient manner based on a “*user pays*” philosophy, i.e., at no cost to the rate or tax payers with the generators incurring the cost of waste treatment and disposal.

With the enforcement of environmental legislation there is a necessity for wastes generated in the course of industry to be properly and effectively treated prior to disposal using best available technologies. Responsible environmental management, particularly in terms of waste management, has become essential company practice due to legislative impacts and the expectations of the corporate sector and general community as a whole. Industries are required to meet their obligations for due diligence in their activities and maintain a duty of care for the environment.

NT Resource Recovery believes that industry in the region would benefit from the availability of a state-of-the-art treatment facility which would act as a catalyst for future industrial growth in the area. The proposed facility will perform a vital role in liquid waste management in the Port of Darwin and the surrounding area.

NT Resource Recovery believes that the protection of the environment is the responsibility of the whole community and that private enterprise can work closely with the public sector to achieve the goal of Ecologically Sustainable Development (ESD).

The concept of Ecologically Sustainable Development (ESD) can be defined as the ability of each generation to support its own material needs without denying future generations the same opportunity. The principles include equity between generations, the precautionary principle, the conservation of resources, accountability for one’s actions and the protection, restoration and enhancement of the quality of the environment.

The proposed LWTF not only complies with all such concepts but also enables many other industrial activities to achieve ESD in their own particular business operations.

1.5 Project Background and Justification

In 1999, the Northern Territory Government enacted the Waste Management and Pollution Control Act which requires businesses to comply with a General Environmental Duty in the conduct of their activities.

This duty requires any person or company undertaking an activity which causes or may cause environmental impacts to take all reasonable steps to minimise the environmental harm and to reduce the generation of wastes. With the enforcement of the Act there is a necessity for a waste service to provide effective and appropriate methods of waste management such as collection, transport, treatment, storage and disposal in the Darwin region. The Liquid Waste Treatment Facility will be designed to meet the needs of the Northern Territory and will be a purpose-built facility capable of providing an essential mechanism to industries in meeting their General Environmental Duty.

The site is located near the new East Arm Port and NT Resource Recovery believes that the facility will perform an important role in liquid waste management to the maritime industry and the Northern Territory region.

It is expected that the provision of an advanced treatment facility capable of offering best available technology should significantly reduce uncontrolled environmental impacts from liquid wastes. Additional benefits will include “cradle to grave” management of wastes, reductions in contaminated sites and a reduction in the long term risks to the Government and the general community.

The proximity of the facility to the Port of Darwin will enable NTRR to provide waste management services to the shipping and maritime support industries such as cleaning of shipping containers, hull washings, and the collection and disposal of ships’ sewage, bilge wastes and bunker oils.

1.6 Description of the Project

1.6.1 General

The Mendis Road site has been prepared within an industrial subdivision by Paradise Developments and includes the necessary subdivision, earthworks and off-site stormwater drainage, and connection of services. NTRR will provide project supervision of the design, construction and, ultimately, operational control of the Liquid Waste Treatment Facility (“LWTF”). For the purposes of this PER, the starting point for the project is the commencement of construction of the LWTF.

1.6.2 Summary of the Proposal

The proponent, N T Resource Recovery (“NTRR”) has identified a need for a facility capable of treating liquid industrial wastes in the Northern Territory.

NTRR proposes to build and operate a liquid waste treatment facility for a wide range of industrial, commercial and domestic wastes including biodegradable aqueous wastes, oily water wastes, wash waters, shipping wastes and non-sewerable industrial wastes to support the growing port and maritime industries within the East Arm Control Area and Trade Development Zone.

The objectives of the facility are:-

- Recovery of usable or recyclable products, i.e., oil, solvents, biodegradable greases and fats.
- Maximum removal of water from wastes.
- Chemical neutralisation, stabilisation and solidification of industrial wastes to a level acceptable for disposal in which the risk to the environment is minimal.
- Biological treatment of the water phases to a level suitable for discharge to the environment or the receiving environment, i.e., PAWA lagoons.
- Waste collection and transport services.

NTRR is proposing to offer waste management services to support the port and port-related activities and the industries of the Northern Territory including the following:

- ♦ Collection, transport and treatment of shipping wastes including bunker oils, bilge wastes, sewage and biodegradable wastes;
- ♦ Waste management services to industries in the Northern Territory and offshore oil and gas drilling rigs;
- ♦ Complete waste management services to the local and international Defence Forces;
- ♦ Industrial cleaning operations including high pressure water blasting, drain cleaning, tank cleaning and washout of ships' holds, shipping containers and ISO-tankers;
- ♦ Washing and cleaning of shipping containers for importers and exporters to comply with quarantine requirements;
- ♦ Collection and treatment of non-sewerable industrial wastes from maritime support industries;
- ♦ Emergency response advice and services.

Port and maritime industries will use 50% of the LWTF's treatment capacity and 75% of its servicing capabilities.

In the future, NTRR also intends to provide more diversified maritime services, including heavy vacuum road tankers, oil salvage tankers and high pressure water blasting units.

The LWTF will incorporate the following units:

- ♦ Biological aqueous waste receipt, storage and treatment plant;
- ♦ Oily water and waste oil receipt, storage and treatment plant;
- ♦ A chemical fixation, stabilisation and solidification (CFS) plant for non-sewerable industrial wastes;
- ♦ A container storage and washdown area;
- ♦ A wastewater oxidation unit;
- ♦ Shipping container and ISO-tainer washdown unit;
- ♦ Evaporation ponds;
- ♦ Workshop

- ♦ Administration building incorporating offices and a laboratory;
- ♦ Truck depot.

The LWTF will be constructed in modules to allow for future expansion and to meet the demands of industrial and maritime growth in the Darwin region.

A total of four tank farms will be constructed initially. The layout will allow for expansion to meet potential market demands. The tank farms and bunds will be constructed in accordance with the relevant Australian Standards and Building Codes.

The LWTF has been designed to treat a total annual volume of approximately 5.75 ML. The breakdown of waste classes and respective volumes is presented in Table 1.1.

Table 1.1 Estimated Volumes of Liquid Waste to be Treated at the LWTF

LIQUID WASTE CLASS	ANNUAL VOLUME (ML per annum)
Biodegradable aqueous wastes	1.5
Waste oil	1.5
Oily water	1
Contaminated waters	0.75
Non-sewerable industrial wastes	1
TOTAL	5.75

The volumes have been estimated based on industry and government information and on data from regions within Australia with comparable densities of industry and population.

1.6.3 Treatment Processes

All wastes directed to the LWTF will be assessed to determine the most appropriate treatment and disposal process. NTRR will encourage generators to segregate waste at the source wherever possible to ensure waste treatment costs are kept to a minimum. NTRR will also provide scientific and environmental advice to industries to optimise processes, minimise wastes and assist generators to meet cleaner production targets.

The LWTF will comprise of four (4) treatment processes:

- biodegradable aqueous waste treatment;
- oily water treatment;
- waste oil recycling;
- treatment of non-sewerable industrial wastes by chemical fixation and solidification (CFS).

All four treatment processes will occur on the same site and will be supported by a modern on-site laboratory. The site will also operate as a transfer station for wastes which require treatment at other approved facilities, e.g., solvents for recycling.

The four processes are briefly described below. More detailed information of each process is outlined in Section 2.4.

A. Biodegradable Aqueous Waste Treatment Plant

Biodegradable aqueous wastes such as grease trap wastes will be pumped into a settling tank in which the various phases will be able to separate into the component phases of solids, liquid and a floating scum comprising cooking oils, fats and grease.

The aqueous phase will be transferred to the dissolved air flotation (DAF) unit before discharge to a series of evaporation ponds for final treatment.

The grease, fat and sludge from the settling tank and DAF unit will be transferred to composters or disposed to landfill.

In summary:

- Biodegradable aqueous wastes will be discharged under vacuum into an upright holding tank.
- The waste will be pumped via a solids/liquid separator to a settling tank. Inorganic solids will be removed and disposed at a composter or an approved landfill.
- Settled solids from the settling tank will be used for compost or solidified and disposed at an approved landfill.
- The remaining effluent will be pumped to a biological aeration system prior to discharge to on-site evaporation ponds or the PAWA lagoons.

NTRR has been granted permission to discharge effluent to the PAWA-controlled lagoons. The PAWA has set quality criteria such as mass loading and concentration limits on the effluent.

B. Oily Water Treatment Plant

Oily waters from service stations and automotive workshops will be transferred into a settling tank to allow separation of the oil from the water phase. It may be necessary to introduce chemical additives to break stable emulsions and assist the separation process.

The separated oil will be transferred to the waste oil storage tanks whilst the water phase will be transferred to a coalescing plate separator (CPS) unit in which any residual oil and solids will be removed. The effluent from the CPS unit will then be transferred to the DAF unit for final treatment.

In summary:

- Oily water wastes will be discharged into a receival vessel.
- The oily water will be pumped through a solids/liquid separator and an oil/water separator.
- Recovered oil will be removed and transferred to the used oil storage for recycling. Solid wastes will be disposed and treated in the chemical fixation and solidification (CFS) plant.
- The water phase will be transferred to the Dissolved Air Flotation unit to recover any residual oil and sludge.

- The treated water will be transferred to bulk storage tanks from where it will be transferred by pump to the on-site evaporative ponds or the PAWA lagoons.
- Settled sludge will be dewatered through a filter press and transferred to the chemical fixation and solidification (CFS) plant for further treatment.

C. Waste Oils

Waste oils will be delivered to the site for storage, treatment and resale of the processed oil as a fuel. Treatment methods for the waste oil includes combinations of the following processes:

Dewatering:

A low temperature evaporative, oil conditioning process that removes water and some low boiling point hydrocarbons that may be present in very small quantities. The water is subsequently treated in the DAF unit. Any low boiling point hydrocarbons removed at this stage are separated and used as an energy source on-site.

Demineralisation:

A patented process developed by Transpacific Industries in conjunction with ICI involving a low temperature process in which proprietary chemicals are added to aid in the removal of metal contaminants, impurities and water. Once separated, the oil is filtered to remove any particulate matter prior to sale as fuel oil.

Product Blending:

This ambient temperature process blends the treated oil with distillate and proprietary additives to produce fuel oils for sale. The process involves simple mixing vessels and proportional control of all ingredients.

In summary:

- Waste oil will be discharged into above-ground storage tanks via a filter box to remove any gross solids. Any free water will be drained from the bottom of the storage tanks and transferred to the oily water treatment plant.
- Any settled sludge in the tanks will be removed and transferred to the CFS Plant for further treatment.
- Further treatment may be conducted on the oil depending on the specifications of customers including demineralisation, dewatering, dehydration and filtration.
- Recovered oil will be recycled as a fuel oil for use in boilers and kilns.

D. Chemical Fixation and Solidification Plant

The CFS process is used for non-sewerable liquid waste and sludges to reduce the hazard potential of wastes by converting potentially hazardous contaminants to the least soluble, least mobile or least toxic form.

The chemical fixation step chemically reduces contaminants to the least hazardous form and the solidification step physically and mechanically binds the contaminants into a solid matrix resistant to leaching or breakdown.

Stage 1 : Prescreening

Each waste will be assessed prior to approval to dispose at the facility. Methods of assessment will include analysis, review of Material Safety Data Sheets or analytical data provided by the generator of the waste.

Stage 2 : Receival

On arrival at the facility, the wastes will be sampled and checked to confirm the integrity of the waste. Transport documentation will also be checked and a receipt issued on completion. A small amount of each sample will be retained for a period of time to allow further testing to be conducted if required.

Stage 3 : Fixation

Fixation involves the addition of chemical such as lime or caustic soda to the waste to precipitate soluble metals as insoluble metal hydroxides. Flocculants are added to improve the settling rate of the metal hydroxide particles. The fixation process usually produces a relatively clean, supernatant liquid and a sludge residue. The supernatant, containing only trace levels of metals, will be transferred to the DAF unit and the sludge containing the metal hydroxides will be pumped to a filter press for dewatering prior to solidification.

Stage 4 : Solidification

Solidification mechanically binds the insoluble metal solids using chemical additives such as fly ash, cement or cement kiln dust. Mixing can be achieved using an auger system with hoppers feeding the dry chemical additives to the dewatered cake from the filter press.

The chemically bound solids are then allowed to hydrate/cure for a period of 5 - 7 days.

The site will be secured by a security fence and lockable gates. Out of hours the site will be locked. If necessary, alarms, security lighting and security patrols may be used. Site lighting will be provided in accordance with the relevant Australian Standards and health and safety requirements.

1.7 Potential Environmental Impacts

The potential environmental impacts and proposed management strategies associated with each stage of the development are summarised in Table 1.2.

The primary objectives of the proposed environmental management and monitoring programme are to control environmental impacts to levels within acceptable standards and to minimise possible impacts on the workforce and the general community of foreseeable risks during the planning, design, construction and subsequent operational phases of the LWTF.

The proposed construction phase of the development is expected to be completed within six (6) months from the date of commencement. Possible short term impacts from the construction phase include noise and dust from the building activities and the possibility of increased erosion from surface water runoff.

Potential impacts on the environment from the LWTF, once operational, include risks from the handling, storage and treatment of non-sewerable liquid wastes, atmospheric emissions, management of potentially contaminated stormwater and contamination of the environment from spill or leaks. However, the proposed facility has been designed to mitigate the potential for occurrence of incidents which could lead to impact on the environment. This will be reinforced by strict adherence to operational procedures.

Notwithstanding the possible impacts from the construction and operation of the LWTF, the facility will provide a number of environmental benefits including responsible management of liquid wastes from “cradle to grave”, recycling of wastes into useable products, e.g., waste oils into fuels, treatment of industrial wastes to a level considered non-hazardous to the environment and suitable for disposal to approved landfills, and, in conjunction with government agencies, emergency response expertise for industrial and traffic accidents.

The construction of the LWTF will provide industry and the community with a viable, safe and economic alternative for waste disposal in line with government legislation. Overall, the community and environment will benefit from the reduction in exposure to the risks posed by the illegal or improper disposal of industrial wastes.

Table 1.2 Summary of Potential Impacts Associated with the LWTF

CONSTRUCTION PHASE

ISSUE	POTENTIAL IMPACT	ENVIRONMENTAL MANAGEMENT & SAFEGUARDS	MONITORING
Air Quality	Dust from earthworks and vehicle movements.	If dust emissions are problematic then dust suppression methods such as water trucks will be implemented.	Visually monitored by Project Manager.
Noise	Noise may be generated by construction activities or traffic.	Site is within a designated industrial area. The nearest residence is 4 km away. If noise complaints are received, hours of operation may be adjusted.	Noise monitoring will be conducted in response to noise complaints.
Construction Wastes	Management of construction wastes will be required.	<ul style="list-style-type: none"> Solid wastes will be disposed at approved landfills or reused as on-site fill and landscaping. Liquid wastes will be 	The Project Manager will conduct daily inspections of the site to ensure construction wastes are disposed of correctly.

ISSUE	POTENTIAL IMPACT	ENVIRONMENTAL MANAGEMENT & SAFEGUARDS	MONITORING
Construction Wastes – cont.		collected and treated or recycled by NTRR. <ul style="list-style-type: none"> Sewage and sullage will be collected and disposed at approved waste disposal sites. 	The Project Manager will inspect the boundaries of the site daily to ensure adequate waste controls exist on-site and that pollution does not occur.
Surface Water Run-off and Erosion	Increased turbidity and sedimentation of the marine environment and siltation from surface water run-off and soil erosion.	Implementation of good construction practices aimed at minimising the impacts of erosion e.g. surface drainage systems to divert run-off from construction areas and provision of silt traps to minimise off-site sediment discharges.	Regular inspection of silt traps and stormwater drains.
Traffic	Increased traffic, noise and safety-related issues.	As an industrial estate, traffic will not travel through residential areas. Construction vehicles will haul via designated arterial routes.	The Project Supervisor will monitor and regulate traffic activity to the site to minimise impacts such as noise, dust & increased local traffic.
Biting Insects	Increase in mosquito and biting insect populations due to pooling of water and possible creation of breeding sites. Potential for transmission of diseases. Public nuisance.	Design and maintenance of earthworks and drainage systems during construction to prevent the creation of potential mosquito breeding areas. Where necessary, larvicides will be used to prevent mosquito breeding.	Regular inspection for potential breeding areas.

OPERATIONAL PHASE

ISSUE	POTENTIAL IMPACT	ENVIRONMENTAL MANAGEMENT & SAFEGUARDS	MONITORING
Risk	The LWTF has the potential to pose hazards to employees, the public and the company.	Preliminary risk assessments have been conducted. Risk control measures implemented into design & construction phase.	Regular performance audits will be conducted of environmental control systems. These will be reviewed by the Site OHS&E Committee. Risk assessments will be conducted on all new plant, equipment, projects, chemicals and operations to identify and control OHS&E - hazards or impacts.

ISSUE	POTENTIAL IMPACT	ENVIRONMENTAL MANAGEMENT & SAFEGUARDS	MONITORING
Risk – cont.			Risk assessments will be conducted on all new activities to ensure hazards are controlled and safe work procedures are followed. SWP will be reviewed annually.
Stormwater Management	Stormwater can transport contaminants from the site into the marine environment & groundwater.	<p>Implementation of good housekeeping practices & spill management.</p> <p>Segregate clean & contaminated stormwaters.</p> <p>Treat contaminated stormwater by provision of CPS unit to remove oil and suspended solids.</p>	<p>Monitoring of stormwater effluent from the site. Parameters to include visible and chemical contaminants.</p> <p>Daily housekeeping procedures to maintain clean areas including roads and bunds.</p> <p>Daily inspections of stormwater drains, sumps, traps and roadways during and after rain events. Removal of debris, solids and any hydrocarbons from catchment traps.</p>
Spill Management	Spills or leaks can contaminate stormwater, the soil or leach into the ground water.	<p>Spill kits provided.</p> <p>Construct impervious bunds & roadways to Australian Standards.</p> <p>Emergency response plan.</p>	<p>Daily visual inspections of the site for spills.</p> <p>Weekly site OHS&E audits.</p> <p>Non-conformance reports for spills which are reviewed monthly by Site OHS&E Committee.</p> <p>Regular audits (12 monthly) of operating procedures.</p>
Waste Management	Increased loading on landfills.	<p>Segregate recyclable wastes.</p> <p>Minimise waste generation.</p> <p>Dispose of treatment wastes to approved facilities</p>	<p>Waste audits.</p> <p>Regular inspection of the site to ensure wastes are disposed of segregated correctly.</p> <p>Inspections to ensure wastes are stored and contained adequately.</p> <p>Annual waste audits to review waste minimisation and management.</p> <p>Documentation for all wastes despatched from the site is correctly recorded and filed.</p>

ISSUE	POTENTIAL IMPACT	ENVIRONMENTAL MANAGEMENT & SAFEGUARDS	MONITORING
Air Quality	<p>Odour emissions from handling and treatment of wastes.</p> <p>Volatile organic carbon emissions from the storage & handling of fuel oils, waste oils & oily waters.</p>	<p>Minimise aspiration of wastes.</p> <p>Accurate classification of wastes.</p> <p>Reduce treatment volumes.</p> <p>Send wastes to off-site facilities for treatment.</p>	<p>Odour monitoring in response to complaints.</p> <p>Wind direction.</p> <p>Monitoring for odours or dust in response to complaints. Monitor boundaries and point sources.</p> <p>Regular site inspections for dust sources such as roadways.</p> <p>Weather monitoring for parameters such as wind direction.</p> <p>Testing and assessment of all wastes prior to and upon receipt to prevent unwanted odours, emissions or reactions.</p>
Noise	<p>Increased noise from operational activities.</p>	<p>Site is within a designated industrial area. The nearest residence is 4 km away. If noise complaints are received, hours of operation may be adjusted.</p>	<p>Noise monitoring will be conducted in response to noise complaints.</p> <p>Equipment will be assessed for noise levels prior to purchase</p> <p>Sound levels will be monitored on the site boundary and near operating equipment to determine background, normal and peak noise levels.</p> <p>Traffic flows will be controlled as much as possible to normal business hours.</p>
Mosquitoes & Biting Insects	<p>Potential health problems from the transmission of diseases.</p> <p>Public nuisance.</p>	<p>Maintenance of drainage systems to prevent creation of potential mosquito breeding areas.</p> <p>Where necessary, chemical controls will be used to prevent mosquito breeding.</p>	<p>Regular inspection for potential breeding areas.</p> <p>Daily visual inspection during and following rainfall events of drains, traps, sumps and bunds on and around the site for breeding sites.</p> <p>Removal of water from drains, sumps, traps and bunds during or as soon as possible after rain.</p> <p>Inspection and removal of all containers and devices which can offer a temporary breeding site, e.g. empty drums.</p>

ISSUE	POTENTIAL IMPACT	ENVIRONMENTAL MANAGEMENT & SAFEGUARDS	MONITORING
Mosquitoes & Biting Insects – cont.			Particular attention prior to wet season to clean up the site. Use of chemical sprays where necessary. Sprays include PTI or Metheprine which are both mosquito-specific insecticides.
Traffic	Increased traffic, noise and safety-related issues.	As an industrial estate, traffic will not travel through residential areas.	

1.8 Management Commitments

NTRR seeks to establish a liquid waste treatment facility that will utilise proven, appropriate technology to minimise environmental impacts from the treatment, transport, storage and disposal of various industrial wastes.

The Industrial Waste Treatment Facility has been designed to minimise any impacts on the surrounding environment. The operational procedures have been developed to ensure that the Facility is managed and operated in accordance with company and legislative requirements. The parameters and procedures have been selected from best practices adopted by the Transpacific Industries group of companies elsewhere throughout Australia.

The auditing programme documented in the Environmental Management Plan will ensure that the highest safety and environmental standards will be maintained throughout the operational life of the facility.

A review of the potential environmental impacts identified within the proposal indicate that the proposed facility will have negligible impact on the environment. The provision of an integrated waste treatment facility will have a positive effect on the management of industrial wastes from the port and the region's industries by offering safe and responsible disposal options.

Table 1.2 provides a summary of key environmental impacts identified for the facility and NT Resource Recovery's management of each issue.

A summary of the management commitments to ensure the development of an environmentally responsible facility is presented in Table 1.

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Table 1.3 Summary of Management Commitments

ISSUE	OBJECTIVE	COMMITMENT	TIMING	WHOSE ADVICE	MONITORING CRITERIA
Dust (Section 5.3.1)	To ensure that dust emissions do not cause adverse impacts.	Implement appropriate dust control measures, e.g., use of water trucks.	During construction.	DLPE	Site inspections. Visual inspection to ensure wind-borne dust or dust caused by truck movement does not cause a nuisance beyond the site's boundaries.
Noise (Sections 5.3.1 & 5.3.2)	To minimise noise impacts beyond the site boundaries	Sound levels will be consistent with good industry practices & government regulations.	During construction & operation.	DLPE	Noise monitoring as required. Noise levels monitored at point sources and health and safety risks evaluated against appropriate noise exposure standards. Noise levels monitored at the boundary and any noise sensitive location to ensure compliance with noise level criteria. Generally, Background noise level plus 5dB(A) at a noise sensitive place. Background noise level plus 10dB(A) at a commercial place.
Emergency response (Section 5.3.2)	Ensure minimal risk of impact to the environment, personnel or community by implementation of an	An Emergency Response Plan will be developed that addresses various emergency scenarios. Employees will be trained	Prior to commissioning.	DLPE, NT Fire Authority	Presentation and implementation of Emergency Response Plan.

ISSUE	OBJECTIVE	COMMITMENT	TIMING	WHOSE ADVICE	MONITORING CRITERIA
Emergency response – cont. (Section 5.3.2)	Emergency Response Plan.	in emergency response protocols.			<ul style="list-style-type: none"> • Audits of Emergency Response Plan. • Assessment and review of responses to actual or planned emergencies Assessment to involve Emergency Services. • Audit Emergency Response Plan against requirements for hazard facilities eg Worksafe Major Hazard Facilities, Australian Standards, or AIP requirements.
Spills & leaks (Section 5.3.2)	To ensure no adverse impacts occur due to spills and leaks.	<p>Procedures developed to ensure maintenance & operations conducted to minimise spills and leaks, e.g., spill management.</p> <p>Routine maintenance checks on plant & equipment.</p>	During operation	DLPE	<p>Presentation of Site Safety and Environmental Awareness training. Presentation and implementation of Emergency Response Plan.</p> <p>Audit of site procedures and observation of activities. Inspection of work areas, bunds and roadways daily to ensure housekeeping and cleanliness protocols are being met.</p> <p>Visual inspection of stormwater run-off and</p>
Spills & leaks – cont.					

ISSUE	OBJECTIVE	COMMITMENT	TIMING	WHOSE ADVICE	MONITORING CRITERIA
(Section 5.3.2)					rainfall contained within bunded areas for visible signs of contamination.
Hazardous substances (Section 5.3.2)	Ensure that the risks of handling, storing & transporting hazardous substances are properly managed.	Appropriate management procedures will be implemented & employees trained.	Prior to commissioning.	DLPE, WHA	<p>Implementation and training of hazardous substance management procedures.</p> <p>Audits of testing procedures, records, training and operation of procedures to ensure compliance with procedures.</p> <p>Assessment of non conformance eg failure of processes to meet specifications.</p> <p>Analysis of treated wastes to meet specification.</p> <p>Weekly stock take and volume reconciliations.</p> <p>Daily records of all transfers and tank volumes.</p>
Waste management (Section 5.3.2)	To ensure that wastes generated by the activities of the facility are properly managed	Appropriate management procedures developed & implemented to ensure wastes are recycled or disposed correctly.	Prior to commissioning.	DLPE	<p>Implementation of waste management procedures & training of personnel.</p> <p>Audits of waste management practices.</p> <p>Assessment of waste</p>
Waste management –					

ISSUE	OBJECTIVE	COMMITMENT	TIMING	WHOSE ADVICE	MONITORING CRITERIA
cont. (Section 5.3.2)					production figures against reuse, recycling or reduction targets. Conduct annual mass balances of all processes and revise waste management targets.
Environmental Management System (Section 5.1)	Ensure minimal risk of impact to the environment, personnel or community by implementation of Environmental Management System. Control of environmental impacts within acceptable limits.	An Environmental Management System will be developed & implemented.	During commissioning & operation.	DLPE	Issue of EMS and training of personnel. Review of system and procedural non conformance and corrective actions. Measure against performance targets. Assessment of records and documentation.
Environmental Management Plan (Section 5.2)	To ensure that environmental management strategies address potential impacts	An Environmental Management Plan will be implemented once approval for the LWTF has been granted.	Prior to operation	DLPE	Implementation of EMP and training of personnel. Review of environmental non conformance, incidents or exceedances. Assess corrective measures. Measure performance against target indicators Audit working procedures and operational activities against documented
Environmental					

ISSUE	OBJECTIVE	COMMITMENT	TIMING	WHOSE ADVICE	MONITORING CRITERIA
Management Plan – cont. (Section 5.2)					procedures. Measure impacts for compliance with state criteria.

1.9 Structure and Scope of the PER

The PER has been prepared to meet the requirements of the NT Environmental Assessment Act. The purpose of the PER is to provide concise and comprehensive information concerning the design, construction and operation of the LWTF and the potential environmental impacts associated with it. The public review process enables balanced review and assessment of the proposal and the environmental impacts and provides a means of assessing the risks associated with the LWTF to be assessed and contingencies developed beforehand.

The PER focuses only on the direct environmental impacts presented by the construction and operation of the LWTF and the immediate surrounds.

This document has been prepared in accordance with the guidelines issued by the Minister for Lands, Planning and Environment (DLPE) in February, 2000.

The PER includes the following main sections:

SECTION	TITLE	CONTENTS
1	Executive Summary	Background and justification of the project.
2	Project Description	<ul style="list-style-type: none">• Location of the proposed development.• Elements of the project including design, construction & operation.
3	Existing Environment	Description of the existing environment.
4	Environmental Impacts & Issues	<ul style="list-style-type: none">• Potential environmental impacts from the construction & operational phases.• Management strategies to minimise or control impacts.
5	Environmental Management	<ul style="list-style-type: none">• Environmental Management System for the facility.• Environmental Management Plan for the construction & operational phases.• Monitoring programmes.
6	Summary of Environmental Commitments	Summary of commitments to the management & monitoring strategies.
7	Glossary	Definitions of terms.
8	References	References used during research.
Appendices		Supporting documentation, calculations, plans, flowcharts, etc.

1.10 Studies Undertaken as Preparation of the PER

The proposed LWTF requires land zoned as General Industry with sufficient area to accommodate the proposed development and allow for future expansion if required. The subject land complies with these zoning and size requirements.

The site in Mendis Road affords geographical and commercial advantages for the proponent, local industries, the Port and Port-related activities and the local community.

Access to the site is satisfactory for six wheel, eight wheel and semi-trailer and B-double vehicles. The site is in close proximity to nearby highways.

Market surveys undertaken by Transpacific Industries Pty Ltd in 1999 indicated a possible 10 - 20 ML of industrial liquid waste was being generated in the Darwin region with a break-up as follows:-

Table 1.4 Liquid Industrial Wastes in the Northern Territory (1999)

LIQUID WASTE CLASS	ANNUAL VOLUME (ML per annum)
Biodegradable aqueous wastes	2 – 5
Oily waters	2 – 5
Oils (suitable for recycling)	5 – 7
Non-sewerable industrial wastes	1 - 3
TOTAL	10 – 20 ML/YR

The information was obtained through discussions with waste generators such as the Department of Defence, Port of Darwin, large hotels, car yards and industrial waste generators, in addition to information obtained from the Australian Institute of Petroleum, several local transporters and Local and Territory government agencies.

It was assumed that the volumes of liquid waste will increase with the advent of stricter environmental laws, tighter regulation on trade waste discharges to the sewer, industrial development and expansion of greenfield sites which will be subject to more stringent planning and assessment requirements, and increased public environmental awareness and accountability of companies.

The availability of a LWTF capable of providing industries with a safe and responsible means of waste management using cost-effective, environmentally sound treatment processes will form an important element in the life cycle stewardship of industrial wastes.

This PER utilises experience from similar projects designed, constructed and operated by other companies within the Transpacific Industries Group including Townsville, Brisbane, Perth and Kalgoorlie.

Surveys and correspondence in relation to the proposal were received from the following sources:

- Department of Lands, Planning and Environment;

- PAWA - Infrastructure Branch & Environmental Services;
- Department of Business and Industries;
- Trade Development Zone Authority;
- Darwin City Council;
- Darwin Port Corporation;
- Mobil Oil Australia & Shell Australia Ltd;
- Various waste transport company operators;
- Thiess Environmental Services.

1.11 Aboriginal Sacred Sites

The Aboriginal Areas Protection Authority has advised that it has no Registered or Recorded sacred sites within the area of the proposed facility.

An Authority Certificate (C97/110) was issued in August 1997 by the Aboriginal Areas Protection Authority for the area of which the sub-division is a part. The Certificate is currently held by the Department of Lands, Planning and Environment.