Proposal to package and transport intractable wastes (PCBs and agricultural pesticides) to Fremantle Port for disposal outside Western Australia

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Carpentaria Environmental Services Pty Ltd

Report and recommendation
of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Bulletin 623
April 1992

THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's recommendations.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

APPEALS

If you disagree with any of the assessment report recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of $10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

ADDRESS

Hon Minister for the Environment
18th Floor, Allendale Square
77 St George's Terrace
PERTH WA 6000

CLOSING DATE

Your appeal (with the $10 fee) must reach the Minister's office no later than 5.00 pm on 24 April, 1992.

ISBN 0 7309 4786 6
ISSN 1030 - 0120
Assessment No 646

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Summary and recommendation

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The proposal was referred to the Environmental Protection Authority (EPA) in December 1991, and the Authority set the level of assessment at Public Environmental Review (PER). The PER was released for a ten-week public review period which commenced on 23 December 1991 and closed on 28 February 1992.

The Authority has assessed the potential environmental impacts of the proposal, as described in the PER, and utilised additional information supplied by other government agencies, the public and the proponent. Additionally, a senior officer of the Environmental Protection Authority carried out a site inspection of the Rechem facilities and discussed environmental issues with relevant government authorities and Her Majesty's Inspectorate of Pollution in the United Kingdom.

The proponent has developed a comprehensive list of commitments covering the environmental issues raised during the assessment (Appendix 1).

Environmental issues relating to ownership, packaging, handling, transportation to the Port of Fremantle and emergency response procedures, interim storage, auditing and alternative options for disposal have been considered in this assessment. The proponent has addressed these issues by making a commitment to carry out all elements of the operation within the jurisdiction of the Government of Western Australia to the satisfaction of the Environmental Protection Authority, and outside that jurisdiction to the satisfaction of the relevant government agencies.

The Health Department is the agency with the responsibility for managing the disposal of industrial waste in Western Australia. The Health Department has put forward two proposals for the construction and operation of high temperature incinerators in Western Australia. The first was for a facility near Koolyanobbing in 1986, and the second near Mt Walton in 1988. The Environmental Protection Authority assessed both proposals, and in each case, advised Government that the proposals were environmentally acceptable, subject to certain requirements. In each case the Government has agreed with the proposal. Neither proposal has been implemented. Subsequently, the Health Department proposed to build a storage facility for organochlorine wastes (ie PCBs and certain pesticides) at the Mt Walton site. The Health Department also put forward a proposal for road transport of intractable wastes to the site. The Authority's advice was that both the latter proposals were environmentally acceptable. Currently, the access road is almost complete but no storage facility has been built. Thus, no substantive action has taken place on the disposal of organochlorine wastes within Western Australia.

In its submission to the Authority, the Health Department noted that this proposal for export of organochlorine wastes, as outlined in the PER, was acceptable.

The Authority has always held the position that to do nothing to dispose of PCBs is a poor environmental option, as much of the material could end up in uncontrolled landfill sites. Moreover, the Authority does not believe that storage of PCBs is a suitable long-term option, particularly if environmentally sound options for destruction are available.

Given previous problems with establishing high temperature incinerators in New South Wales, Victoria and Western Australia, the Environmental Protection Authority does not expect a speedy resolution to the issue of disposal of intractable wastes in Australia.

The United Nations Environment Programme convention on the control of transboundary movements of hazardous wastes and their disposal (otherwise known as the Basel Convention) expects developed countries to have their own disposal facilities. However, under the convention, where a country does not have its own facility, there are mechanisms for export of such waste to developed countries which do have proper incineration facilities. The Convention regulates the transfrontier requirements for transport of hazardous waste including issues such as labelling, packaging and proof that the receiving country is able to dispose of the waste satisfactorily. The Minister for Arts, Sport, the Environment and Territories, Canberra, is the person who administers the Commonwealth Act (The Hazardous Waste {Regulations of Export and Imports}Act 1989) which covers the issuing of permits for the export and destruction of intractable waste. Before the Minister issues a permit to a company it is necessary for the Minister to be satisfied that the final disposal of the hazardous waste is environmentally acceptable. In this case the Department of Arts, Sport, the Environment and Territories has advised this Authority that it has issued a permit to the proponent to export the waste for destruction at Pontypool and Fawley in the United Kingdom.

The role of the EPA is to advise the Western Australian Government on environmental issues confined to the jurisdiction of the territory of the State. Many submissions raised ethical issues about the overseas disposal of intractable waste. The Authority notes the strength of the argument.

The EPA concludes that high temperature incineration is a proven method of disposal of intractable organochlorine wastes. The Authority also recognises the potential hazard this waste poses in its present storage if it were to catch fire. Such a fire could produce fumes containing dioxins and dibenzofurans, as well as cause containers to leak. The Authority notes that at the present time there are a number of alternative destruction technologies under trial in Australia, including the CSIRO plasma arc pilot plant in Melbourne. These indicate that other methods of waste destruction may become available at some time in the future. However, given that little or no action has occurred in recent years with respect to disposal of organochlorine wastes, the Authority does not believe that waiting for an alternative method of treatment to be developed some time in the future is sufficient reason for holding up approval for this proposal.

The Environmental Protection Authority has concluded that the component of this proposal that falls within the jurisdiction of the State, to package and transport existing organochlorine waste to the Port of Fremantle is environmentally acceptable. The Authority also notes that the Commonwealth Government has granted export approval to the proponent. **The Environmental Protection Authority also concludes that the practice of exporting intractable waste from Western Australia should cease within five years from the release of this report, as the disposal of the backlog of waste should have been completed by then. If in the future, materials or processes producing new intractable waste were to be identified, the Environmental Protection Authority would expect waste minimisation practices to be employed to manage the waste stream. Additionally, the Authority would expect the owners of such intractable waste to thoroughly review new disposal techniques used in Australia for disposal methods with the long-term objective of eliminating this type of waste.**

Recommendation

The Environmental Protection Authority has concluded that those components of the proposal within the jurisdiction of Western Australia to package and transport to the Port of Fremantle existing waste polychlorinated biphenyls

(PCBs) and chlorinated pesticides which are stored at various centres in Western Australia is environmentally acceptable. If the proponent were to use any facility for high temperature incineration other than those already nominated in the Commonwealth Export Permit, it would need to provide an Export Permit, issued by the Commonwealth Government, to this Authority nominating the incinerator facility to be used before the Authority would advise Government that the proposal was acceptable.

In reaching this conclusion, the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as ownership, packaging, handling, transportation and emergency response procedures, interim storage and auditing.

Accordingly, the Environmental Protection Authority recommends that the proposal could proceed subject to the proponent's commitments given in the Public Environmental Review (PER) and during the assessment of this proposal.

1. Introduction

The proponent, Carpentaria Environmental Services Pty Ltd, proposes to collect an existing backlog of waste polychlorinated biphenyls (PCBs) and chlorinated pesticides which are stored at various centres in Western Australia and export them to the United Kingdom for destruction by high temperature incineration at the Rechem facilities at Fawley and Pontypool. The proposal does not cover waste which may be generated in the future as it is unlikely these materials would ever be used again in Western Australia.

The proposal was referred to the Environmental Protection Authority (EPA) in December 1991, and the Authority set the level of assessment at Public Environmental Review (PER). The PER was released for a 10-week public review period which commenced on 23 December 1991 and closed 28 February 1992.

During the environmental assessment of the proposal as described in the PER, the Authority utilised information supplied by other Government agencies including the Health Department which manages the disposal of industrial waste in Western Australia, the public and the proponent. Additionally, a senior officer of the Environmental Protection Authority carried out a site inspection of the Rechem facilities and discussed environmental issues with relevant government authorities in the United Kingdom.

The proponent has developed a comprehensive list of commitments covering the environmental issues raised during the assessment (Appendix 1).

Environmental issues relating to ownership, packaging, handling, transportation and emergency response procedures, interim storage, auditing and alternative disposal options have been considered in this assessment. The proponent has addressed these issues by making a commitment to carry out all elements of the operation within the jurisdiction of the Government of Western Australia to the satisfaction of the Environmental Protection Authority, and outside that jurisdiction to the satisfaction of the relevant government agencies.

2. Description of proposal

2.1 Background

The Australian Code for the Transport of Dangerous Goods by Road and Rail classifies dangerous goods into classes based on the type of hazard the materials pose. The Code provides prescriptions for the packaging, handling, transport and storage of these materials so that the risks posed by them are minimised.

The proponent specialises in management, export and destruction of intractable wastes. It has exported PCB waste from Australia for the past four years. It presently holds a permit from the Commonwealth Government to export such wastes for high temperature destruction at the Rechem high temperature incinerators at Fawley and Pontypool, in the United Kingdom. The proponent will take responsibility for all aspects of the proposal, including incineration, but does not intend taking ownership of the waste.

The Environmental Protection Act, 1986 is applicable only to the State of Western Australia including coastal waters to a distance of three nautical miles from the coast. Therefore, the proponent only seeks approval for activities relevant to this jurisdiction. These activities include the handling, packaging, interim storage and transport of the waste and their loading onto ships at the Port of Fremantle.

2.2 Proponent's justification for the proposal

At present the waste PCBs and pesticides are stored in a variety of forms of packaging and at a number of locations in Western Australia. In some cases the packaging is deteriorating and re-packaging is required. Other packaging can be expected to deteriorate in the future, because of the corrosive nature of some waste and sub-optimal storage conditions. It is also probable that further transport of these waste materials will be required as a result of consolidation of storage facilities, commercial changes relating to changes in contract storage agreements, and ownership of storage facilities.

All re-packaging of waste materials, and handling and transport create the possibility of exposure of personnel as a result of spillage and clean-up requirements. While this possibility is low due to the stringent procedures required for the handling and transport of the waste materials, it is nevertheless present and will continue while the wastes remain in existence.

More significantly, there is a possibility that wastes in current storages may be involved in fires and that hazardous emissions may occur as a result. As some of the waste materials are currently stored in the Perth metropolitan area and others are in country towns and agricultural areas, the potential consequences of a fire involving these chemicals in terms of public health, exposure of firefighters and other emergency personnel, and environmental contamination need to be recognised.

The Health Department of Western Australia has proposed the establishment of a single facility for the long-term storage of waste PCBs and agricultural pesticides at a remote and unpopulated location east of Mt Walton in response to the above concerns. This would enable all of the waste to be packaged in uniform containers and stored in a specifically designed facility that would reduce the need for further handling in the short-term. Certain pesticides, however, would have to be repackaged from time-to-time because of their corrosive nature and potential to leak. Storage at Mt Walton would also reduce the possibility that the waste materials would be involved in accidental fire.

Long-term storage, however, even in a purpose built facility, does not offer a permanent solution to the problems associated with these waste materials. Ultimately, a permanent solution can only be achieved by their destruction.

The proponent reviewed the methods of destruction and concluded that the only method suitable for the range of waste materials in Western Australia was destruction by high temperature incineration. Other methods were either only applicable to certain chemicals, chemicals in liquid form or were at an early stage of development and had not been proven in full scale trials. While there have been some advances in alternative technology recently, high temperature incineration continues to be the only proven destruction technology.

High temperature incineration is a proven method of destruction for intractable waste materials and incinerators are routinely required to achieve 99.9999% destruction efficiency. The incineration facilities in the United Kingdom cited in the Public Environmental Review operate to a guaranteed destruction efficiency factor of 99.99995%. Incineration facilities operate in most countries of Western Europe as well as the United Kingdom, USA and Canada. Indeed Australia is one of the few developed countries which does not have a high temperature incineration facility. It also appears unlikely that such a facility will be built in Australia in the near future.

The present proposal therefore provides an acceptable alternative to the present situation of long-term storage and provides the only currently available option for destruction of these waste materials. The benefits of destruction compared to long-term storage include the resolution of occupational and public safety issues, and removal of the ongoing possibility of environmental contamination.

2.3 The proposal

The proposal is to collect intractable wastes (the proponent estimates quantities to be approximately 1000 tonnes: 740 tonnes of PCBs, and 260 tonnes of pesticides including existing packaging) held throughout Western Australia and ship them to the United Kingdom for destruction by high temperature incineration. The majority of wastes will be shipped for disposal within two years. The PCB waste include liquids, contaminated solids and solvents while the pesticides include DDT, chlordane, aldrin, dieldrin, heptachlor and chlorinated phenols.

The PCB wastes are held at a range of locations with the majority being at mining centres in the Pilbara, and in the metropolitan area. The pesticide wastes are held by the Department of Agriculture near Katanning, Merredin and Wongan Hills, all of which are within 300km of Perth.

2.3.1 Export permit

The proponent holds an Export Permit under the Hazardous Waste (Regulations of Exports and Imports) Act 1989. This permit nominates the Fawley and Pontypool high temperature incineration facilities in the United Kingdom as the ultimate destination of all wastes shipped from Western Australia by the proponent.

This environmental assessment carried out by the Commonwealth Government before the issuing of an export permit ensures that the nominated destruction facilities comply with the requirements of the Commonwealth Government (specifically, the Minister for Arts, Sport, the Environment and Territories).

2.3.2 Repackaging, labelling, inspection and temporary storage

All operations involving packaging, labelling and freight vehicles will be carried out in a manner which comply with the requirements of the Western Australian Dangerous Goods (Road Transport) Regulations 1983 and the Australian Code for the Transport of Dangerous Good by Road and Rail. Additionally all packaging and containment will meet with the requirements of the International Maritime Dangerous Goods (IMDG) Code.

Liquid wastes will be contained in Government approved steel 205 litre drums (closed head drums) and placed into welded steel bins as described in the PER. The bins will be loaded into shipping containers. Solid waste will be contained in 205 litre (open head drums) designed to hold hazardous cargo. Items exceeding the capacity of a 205 litre drum will be packaged directly into the fully welded steel leak-proof bins. These include large transformers which will be secured within trays with packing and steel strapping within the shipping containers. Alternatively, the capacitors may be placed on a wooden pallet inside the bins and timber frames built around the insulators as described in the PER. Small capacitors will be either placed in bins as for the larger units, or packaged in steel "open head" drums of 205 litre capacity. Containerisation will then proceed as for the drummed solids. Transformers, having already been drained and plugged will be placed in an open-top shipping container which will be covered with a sturdy tarpaulin. The transformers will be braced within the container to avoid movement.

For small parcels of waste, repackaging may occur at an interim storage depot which is as yet undesignated but which will be designed to meet the requirements of the EPA.

All bins and containers will be inspected by the proponent prior to their transport to ensure that they are all free from spills or leaks and are properly marked and labelled. Inspection is also open to officers of regulatory government agencies.

2.4 Transport

All wastes will be transported by truck to the Port of Fremantle for export. Road routes will vary depending on the locations of the wastes but in all cases the shortest route compatible with good road conditions will be taken. All transport operations will be carried by the proponent's trained staff and operators licensed by the Mines Department to carry dangerous goods.

Some holdings of waste materials will be too small to fill shipping containers by themselves and there will be a need to consolidate them. Trucks will deliver packaged small holdings from around the Perth metropolitan area and country areas to an interim storage depot for temporary storage and final containerisation. The location of the storage depot has yet to be determined but it will be designed to the meet the requirements of the EPA.

2.4.1 Prior notification and road routes and truck frequency

Prior notification of the quantities of wastes being transported in each consignment will be given to the Environmental Protection Authority, the Department of Mines, police and fire brigade. The notification will also include point of departure, destination, description, route to be travelled and estimated departure and arrival times.

The trucks will take the shortest route from the storage areas to the Port of Fremantle. The roads selected in the PER are in good condition and are suitably controlled by traffic lights at busy intersections.

The transport vehicles will not remain stationary or be parked in any public place within a town or city between the storage locations and the port except for stops for refuelling requirements and rests for drivers between the Pilbara and Fremantle. These will be done away from built up areas if at all possible.

An estimated 70 truck movements will be required to transport all of the waste materials held by the Pilbara mining companies, SECWA and the Department of Agriculture to the Port of Fremantle. The specific timing of packaging and transport will be determined by contractual arrangements with the current owners of the waste materials and by strategic considerations such as the availability of personnel and the arrival times of ships. It is expected that all of the wastes will be transported within a 24-month period although the actual transport will occur within a small number of short-time periods.

2.4.2 Safety

Trucks carrying waste will be driven by drivers licensed to carry dangerous goods of the relevant classes. The vehicles used to transport the wastes will be certified as roadworthy as defined by the Dangerous Goods (Road Transport) Regulations, 1983, no more than 12 months prior to the transport of the wastes. The trucks will also be accompanied by an escort vehicle in accordance with the Commonwealth Guidelines for the Handling and Storage and Transport of PCBs. During the transport of the waste materials the load will be inspected every two hours to ensure no leaks have developed. All vehicles will be equipped with emergency equipment complying with all relevant government requirements.

2.5 Receival at the Port of Fremantle and stowage on ships

The Port of Fremantle has been selected as it is the only specialised container port in Western Australia that has equipment to load the containers that will carry the waste materials. Fremantle is also relatively central with regard to the distribution of the waste materials and the use of this port will minimise road transport distances. Containers will be delivered to the port at a time as close as feasible to the cut-off for cargo receival. This period will be minimised as much as is practical to prevent the cargo from standing for a longer time than necessary. This will be

assisted by all containers already having all the appropriate Export Documentation and Consents of the Australian Customs Service.

The location of the containers in the hold of the ship will be determined in accordance with requirements of the International Maritime Dangerous Goods Code. This will ensure that other materials which may be chemically incompatible will be segregated to prevent reaction in the event of any mishap.

3. Potential environmental impacts and management as given in the Public Environmental Review

3.1 Introduction

The wastes that form the subject of this proposal are currently stored in a manner and under controls that effectively prevent their contact with the environment generally and with people. Provided this situation is maintained there should be no adverse effects from these materials.

If these wastes were released to the environment, they would not break down or only break down slowly and therefore have the potential to contaminate stormwater, surface water and groundwater, and accumulate in biota.

The proposal has been designed to minimise the potential of waste coming into contact with humans or the general environment. This will be achieved by ensuring that all liquid and most solid waste materials are triple-contained prior to any transport in accordance with the regulations governing the packaging, transport and disposal of dangerous goods.

The main potential for an environmental impact therefore relates to the spillage or leakage of intractable wastes. A spill or leak in itself does not represent a high risk to humans. This is because direct contact by ingestion, through the skin or by breathing airborne material for a long period is required before a health hazard is likely. As the wastes do not give off high levels of vapour at normal temperatures, exposure to airborne vapours is substantially restricted to the site of the spill. In the case of direct skin contact, the required treatment consists of thorough washing and proper disposal of contaminated water.

3.2 Potential environmental impacts

The chemical stability of PCBs and organochlorine pesticides are such that they are very persistent in the environment. Consequently they can be widely dispersed throughout the natural environment. They have a low solubility in water but are soluble in the fat of animals causing accumulation. Therefore it is important that the potential for spillage is minimised.

Unless a person is exposed to this waste over an extended period of time they would not experience chronic effects. Other routes of exposure are absorption through the skin or by inhalation following a spill. As these wastes do not easily vaporise, cannot easily be inhaled and can be easily washed off the skin, there is little chance of direct intake at high concentrations. This is especially true for contaminated solids (including packaging) which constitute most of the goods designated for export in this proposal. If direct exposure to high concentrations occurred, short-term effects such as vomiting, headache and dizziness could follow.

The proponent concluded from the above that personnel involved in the handling of the waste materials are of principal concern during any accident. It is important to ensure that personnel do not become exposed physically to the wastes. In order to prevent physical exposure in the event of a spill, the general public will not be permitted to approach the site of any accident.

The management procedures proposed in the PER are largely dictated by relevant government regulations and codes of practice which, if complied with, minimise the potential for waste contacting humans or the environment. To this end the proposal is designed to:

- minimise the potential of spills or leaks;
- contain and control any leaks or spills, if they were to occur, so as to prevent their contact with humans and the environment;
- segregate wastes into lots that reduce the maximum volume of a spill or leak to a manageable quantity;
- provide a shipping strategy that centres on the movement of relatively small consignments of wastes in any one shipment;
- provide management and audit trail procedures that ensure full accountability and traceability of all wastes handled; and
- ensure proper training of personnel in appropriate emergency response procedures in the case of an accident.

3.3 Emergency procedures

The proponent believes that the only significant potential environmental issue for this proposal within the jurisdiction of Western Australia is the potential impact from a spill during packaging, handling or transport or from fire if the waste were to remain in storage. The reason for this belief is that all elements of the activity proposed are covered by extensive Western Australian and Commonwealth Government regulations, in addition to those of the United Kingdom and the Basel Convention. The Western Australian Hazardous Materials Emergency Management Scheme specifies procedures for coping with hazardous materials emergencies in Western Australia such as spills, or collisions or fires involving vehicles carrying the waste materials. It specifies the responsibilities of the relevant government agencies, the owners of the material and the consignors. In essence the emergency procedures, as outlined in the PER, aim to minimise the spread of waste materials into the environment and to prevent humans coming into direct contact with the waste materials.

It is possible, but unlikely, that a small spills may occur during repackaging or loading. If a spill were to occur, the relevant government agencies would be notified and the spill would be managed to the satisfaction of all those agencies including the EPA. Additionally, the spillage site would be constantly supervised or suitably secured until the cleanup has been completed.

3.4 Audit trail

The most effective way of ensuring that all wastes entering the programme are finally disposed of is to provide a documented audit trail of each item throughout the process. All operations involving packaging, labelling and freight vehicles will be carried out in a manner which complies with the requirements of the Western Australian Dangerous Goods (Road Transport) Regulations 1983 and the Australian Code for the Transport of Dangerous Good by Road and Rail. Additionally all packaging and containment will meet with the requirements of the International Maritime Dangerous Goods (IMDG) Code. The proponent will have a system which will identify the existence and location of any item of waste at any time. This information will be accessible to authorised persons and agencies. This formal documentation system and the proponent's audit system will allow authorities and the owners of the waste materials to be confident that the wastes have been destroyed and that all aspects of the proposal have been carried out according to all statutory requirements.

To ensure adequate information is available at any time the proponent would be prepared to inform the EPA of the status of any element of the proposal upon request from the EPA. Such information would include details of all wastes entering the programme, major stages through which each item has been processed and current locations.

3.5 Staff monitoring

Although every precaution will be taken to prevent the exposure of personnel involved with the transport and handling of the waste materials, the proponent will ensure that the health of personnel is monitored according to the relevant occupational health requirements. These may include medical checks and tests as advised by the Department of Occupational Health Safety and Welfare of Western Australia.

4. Summary of public and government agencies' submissions

4.1 Introduction

Sixty three public and government submissions on this proposal were received by the Environmental Protection Authority. A list of those who made submissions is given in Appendix 2. Many public submissions were from the United Kingdom, some in the form of *pro formas* concerning incineration at facilities which are the subject of this proposal. The Authority specifically notes the high quality of the individual public submissions.

Several environmental organisations in Western Australia organised 1689 people to sign a *pro forma* submission to the Authority. Each signature was accompanied by an address.

Many submissions contained philosophical statements of position, and some issues raised were not environmental in nature.

4.2 Specific issues raised in submissions by the public and government agencies and the proponent's responses

Comments from submissions could be broadly classified as follows:

- queries as to why the Health Department does not incinerate wastes in Western Australia;
- support for the proposal;
- storage options;
- payment for storage for existing wastes;
- storage at the Port of Fremantle;
- public opposition to incineration in WA;
- ethics of exporting waste;
- timing of export given present reviews on a national strategy;
- safety during transport and delays at the ports;
- spillage during transport and at the incinerator;
- road versus rail transport;
- rail transport in the metropolitan area to Fremantle;
- packaging and labelling;
- shipping accidents;
- adequacy of incineration and associated safety and health problems;
- production of greenhouse gases as a result of incineration;
- title of waste;

- adequacy of proponent and consultant;
- quality of commitments given by proponent; and
- no public participation in the granting of export permits.

The proponent has addressed the issues relating to the potential impacts with commitments, which are listed in Appendix 1, and in the answers to questions raised in submissions (Appendix 3). The key element of the proponent's response has been to assure the EPA that it intends to carry out its proposal in a manner which complies with all government regulations and in a manner satisfactory to the EPA.

5. Environmental impacts and management identified by EPA

5.1 Introduction

The Authority has assessed the potential environmental impacts of the proposal as described in the PER, and utilised additional information supplied by other government agencies, the public and the proponent. Additionally, a senior officer of the Environmental Protection Authority carried out a site inspection of Rechem facilities and discussed the environmental issues with relevant government authorities and Her Majesty's Inspectorate of Pollution in the United Kingdom.

During its assessment, the EPA gave particular consideration to the issues of ownership, packaging, handling, transportation to the Port of Fremantle and emergency response procedures, interim storage, auditing and alternative methods of disposal. Specific emphasis was placed on the proponent's commitment to carry out the proposal to the satisfaction of the EPA, and to react to potential emergency situations in a manner which would minimise exposure of the waste to the public and the environment. All issues under the jurisdiction of the Government of Western Australia are already covered by regulations and emergency response procedures.

The proponent has developed a comprehensive list of commitments covering the environmental issues raised during the assessment (Appendix 1).

The Health Department is the agency with the responsibility for managing the disposal of industrial waste in Western Australia. The Health Department has put forward two proposals for the construction and operation of high temperature incinerators in Western Australia. The first was for a facility near Koolyanobbing in 1986, and the second near Mt Walton in 1988. The Environmental Protection Authority assessed both proposals, and in each case, advised Government that the proposals were environmentally acceptable, subject to certain requirements. In each case the Government has agreed with the proposal. Neither proposal has been implemented. Subsequently, the Health Department proposed to build a storage facility for organochlorine wastes (ie PCBs and certain pesticides) at the Mt Walton site. The Health Department also put forward a proposal for road transport of intractable wastes to the site. The Authority's advice was that both the latter proposals were environmentally acceptable. Currently, the access road is almost complete but no storage facility has been built. Thus, no substantive action has taken place on the disposal of organochlorine wastes within Western Australia.

In its submission to the Authority, the Health Department noted that this proposal for export of organochlorine wastes, as outlined in the PER, was acceptable.

The Authority has always held the position that to do nothing to dispose of PCBs is a poor environmental option, as much of the material could end up in uncontrolled landfill sites. Moreover, the Authority does not believe that storage of PCBs is a suitable long-term option, particularly if environmentally sound options for destruction are available.

Given previous problems with establishing high temperature incinerators in New South Wales, Victoria and Western Australia, the Environmental Protection Authority does not expect a speedy resolution to the issue of disposal of intractable wastes in Australia.

The United Nations Environment Programme convention on the control of transboundary movements of hazardous wastes and their disposal (otherwise known as the Basel Convention), expects developed countries to have their own incinerator facilities. However, under the convention, where a country does not have its own facility, there are mechanisms for export of such waste to developed countries which do have proper incineration facilities. The Convention regulates the transfrontier requirements for transport of hazardous waste including issues such as labelling, packaging and proof that the receiving country is able to dispose of the waste satisfactorily. The Minister for the Arts, Sport, the Environment and Territories, Canberra, is the person who administers the Commonwealth Act (The Hazardous Waste {Regulations of Exports and Imports} Act 1989) which covers the issuing of permits for the export and destruction of intractable waste. Before the Minister issues a permit to a company it is necessary for the Minister to be satisfied that the final disposal of the hazardous waste is environmentally acceptable. In this case the Department of Arts, Sport, the Environment and Territories has advised this Authority that a permit has been issued to the proponent to export the waste for destruction at Pontypool and Fawley in the United Kingdom.

The role of the EPA is to advise the Western Australian Government on environmental issues confined to the jurisdiction of the territory of the State. Many submissions raised ethical issues about the disposal of intractable waste. Whilst the Authority has reached no conclusion with respect to the ethical considerations, it notes the strength of the argument.

The EPA concludes that high temperature incineration is a proven method of disposal of intractable organochlorine wastes. The Authority also recognises the potential hazard this waste poses in its present storage if it were to catch fire. Such a fire could produce fumes containing dioxins and dibenzofurans, as well as cause containers to leak. The Authority notes that at the present time there are a number of alternative destruction technologies under trial in Australia, including the CSIRO plasma arc pilot plant in Melbourne. These indicate that other methods of waste destruction may become available at some time in the future. However, given that little or no action has occurred in recent years with respect to disposal of organochlorine wastes, the Authority does not believe that waiting for an alternative method of treatment to be developed some time in the future is sufficient reason for holding up approval for this proposal.

The Environmental Protection Authority has concluded that the component of this proposal that falls within the jurisdiction of the State to package and transport existing organochlorine waste to the Port of Fremantle is environmentally acceptable. The Authority also notes that the Commonwealth Government has granted export approval to the proponent. **The Environmental Protection Authority also concludes that the practice of exporting intractable waste from Western Australia should cease within five years from the release of this report, as the disposal of the backlog of waste should have been completed by then. If in the future, materials or processes producing new intractable waste were to be identified, the Environmental Protection Authority would expect waste minimisation practices to be employed to manage the waste stream. Additionally, the Authority would expect the owners of such intractable waste to thoroughly review new disposal techniques used in Australia for disposal methods with the long term objective of eliminating this type of waste.**

Recommendation

The Environmental Protection Authority has concluded that those components of the proposal within the jurisdiction of Western Australia to package and transport to the Port of Fremantle existing waste polychlorinated biphenyls (PCBs) and chlorinated pesticides which are stored at various centres in Western Australia is environmentally acceptable. If the proponent were to use any facility for high temperature incineration other than those already nominated in the Commonwealth Export Permit, it would need to provide an Export Permit, issued by the Commonwealth Government, to this Authority nominating the incinerator facility to be used before the Authority would advise Government that the proposal was acceptable.

In reaching this conclusion, the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as ownership, packaging, handling, transportation and emergency response procedures, interim storage and auditing.

Accordingly, the Environmental Protection Authority recommends that the proposal could proceed subject to the proponent's commitments given in the Public Environmental Review (PER) and during the assessment of this proposal.

The Authority considers that it could be necessary or desirable to make minor and non-substantial changes to the designs and specifications of the proposal which were examined as part of the Authority's assessment. Accordingly, the Authority considers that subsequent statutory approvals for this proposal could make provision for such changes, where it can be shown that the changes are not likely to have a significant effect on the environment.

5.2 Consultation

As part of the preparation of the PER the proponent sought advice from the Social Impact Unit (SIU), a component of the Department of State Development, regarding public consultation. The SIU and the proponent arranged for various interested parties to be briefed on key aspects of the proposal to give them the opportunity to comment prior to completion of the PER. The groups contacted were:

- Greenpeace;
- Australian Conservation Foundation (Perth Branch); and
- Conservation Council of Western Australia.

6. Conclusion

Based on the information supplied in the PER and additional information supplied by the proponent during the assessment, the Environmental Protection Authority has concluded that the proposal could proceed subject to the commitments given by the proponent (Appendix 1) in this report.

Appendix 1

Carpentaria Environmental Services Pty Ltd consolidated list of environmental management commitments

COMMITMENTS

Carpentaria Environmental Services commit to carrying out the following commitments:

1. The Proponent will perform the packaging, handling and transport of the waste materials in conformance to the relevant Local, State, Federal and International Regulations that pertain to the operation. This will be done to the satisfaction of the Government Authorities which are responsible for these regulations, the EPA and the owners of the waste materials.

2. The Proponent accepts responsibility for the waste materials, even though ownership of the waste materials has not changed, from when the packaging and transport of the waste materials has commenced through to the presentation of the Certificate of Destruction of the wastes to the owner. This will be done to the satisfaction of the EPA and the Commonwealth Department of Arts, Sport, the Environment, and Territories.

3. The Proponent commits to the triple containment of the waste materials prior to transport of the material where the nature of the waste materials will allow. This will be done to the satisfaction of the owners of the waste, the EPA and all other relevant Government Authorities.

4. The Proponent commits, in the case of mishap involving the waste, to performing emergency procedures including the clean-up of any spill to the satisfaction of the owners of the waste, the EPA and all relevant Government Authorities.

5. The Proponent commits to seeking approval for any interim storage facility that may be required for the consolidation of small holdings of waste material. This will be done to the satisfaction of the EPA.

6. The Proponent commits to establishing an audit trail for the transport operation to the satisfaction of the owners of the waste and the EPA.

7. The Proponent commits to reporting the progress of the waste materials transport operation to the owners of the waste materials and the relevant Government Authorities at their request. This will be done to the satisfaction of the EPA, the owners of the waste materials and other relevant Government Authorities.

8. The Proponent commits to modifying the *modus operandi* of the transport operation should the EPA deem that unforeseen circumstances have arisen that require such changes in operation. This will be done to the satisfaction of the EPA.

Appendix 2

List of government agencies and members of the public who made a submission

Health Department of Western Australia
Department of Mines
Fremantle Port Authority
Department of the Arts, Sport, the Environment, Tourism and Territories, Canberra, ACT 2601
City of Fremantle

Australian Conservation Foundation
Conservation Council of Western Australia
Greenpeace, East Perth, WA 6004
C Heal, SAEP/Darling Range Forum, Maida Vale, WA 6057
E Horne, Statewide Action Groups, Mt Hawthorn, WA 6016
P Molloy, Swan Waste Action Group, Midland, WA 6056

Boral Resources, South Guildford, WA 6055
Hamersley Iron Pty Ltd, Dampier, WA 6713
Robe River Iron Associates, Wickham, WA 6720

M Davey, M Davey and J Davey, Langford, WA 6147
W F Davenport, Gosnells, WA 6110
P Hitt, Rivervale,WA 6103
O Mueller, Wembley Downs, WA 6019
K N Opie, Gidgegannup WA 6555
J Payne, Roleystone, WA 6111
D M Rose, Kalamunda, WA 6076
J Rosielle, Maddington, WA 6109

R Beesley, address not given, UK
F J Berry, Dorchester, UK
B Brewster, Hampshire, UK
R J Burnett, Councillor, Lyndhurst, UK
H M Butler, Southampton, UK
Dr K Caldicott, Gwent, UK
M and R Clarke, Southampton, UK
C and T Clarke, Southampton, UK
D Chidgey, Parliamentary Spokesman (LD), Alresford, UK
M Colvin, MP, House of Commons, London, UK
G Dawson, Councillor, Lyndhurst, UK
B Dash, Councillor, Southampton, UK
S Delemare, Southampton, UK
Y Fulton, Southampton Friends of the Earth, UK
H D Geary, Southampton, UK
T J Gent, Southampton, UK
B Hale, Councillor, Lyndhurst, UK
G Jenkins, Southampton, UK
P Kelly, Hampshire County Council, Winchester, UK
M Ledson, Bucks, UK
Mr Llewellyn Smith MEP, Gwent, UK
J Maynard, Councillor, Southampton, UK
J Milne, Southampton, UK
Mothers and Children Against Toxic Waste, Gwent, UK
P Murphy, MP, House of Commons, London
J I Newnham, New Milton, UK
J F Oade, Southampton, UK
S Osborne, Councillor, Southampton, UK
R Pawley, Southampton, UK
D Powell (STEAM), Gwent, UK
S Preece, Gwent, UK
M Robinson, Councillor, Lyndhurst, UK

K Sampson, New Millton, UK
C Schuman, New Forest 2000, Hampshire, UK
R Somes, Southampton, UK
W and J Shore, Southampton, UK
The County Planning Officer, Hampshire County Council, Winchester, UK
D M Timlin, Welsh Office, Cardiff, UK
J W Turner, Councillor, Torfaen, UK
J Vernon-Jackson, Councillor, Lyndhurst, UK
M Wade, Councillor, Nr Southampton, UK
R A Williams, Lymington, UK

Appendix 3

Responses to public submissions

Carpentaria Environmental

CARPENTARIA ENVIRONMENTAL SERVICES PTY. LTD. A.C.N. 010 939 250

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FAX: (07) 868 0740

8 April 1992

SAB:pl/167.91049

Dr V Talbot
Assessment Officer
Environmental Protection Authority
Westralia Square
38 Mounts Bay Road
PERTH WA 6000

Dear Dr Talbot,

RE: RESPONSES TO PUBLIC ISSUES, CARPENTARIA PER

Attached are the responses to questions raised during the public review period for the PER on the proposal to transport PCBs and agricultural chemicals for export from Western Australia. Included are the questions raised within the same format in which they were presented.

I hope the format of the responses is to your satisfaction and I look forward to reading the assessment report on the proposal in due course. If you have any questions please do not hesitate to contact me.

Yours sincerely,

for

MR ERIC McCORMICK
General Manager

Carpentaria Environmental

CARPENTARIA ENVIRONMENTAL SERVICES PTY. LTD. A.C.N. 010 939 250

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CARPENTARIA INTERNATIONAL RESPONSES

Review of the National Strategy for the Disposal of Hazardous Waste

1. Is the proponent aware that the Australian and New Zealand Environmental Conservation Council is preparing a national strategy for hazardous wastes and regulations for the management of hazardous waste?

1A. The proponent is aware that the Australian and New Zealand Environmental Conservation Council is preparing a national strategy for hazardous wastes and regulations for the management of hazardous waste. These will be aimed at minimising the production of hazardous wastes and examining how waste streams that cannot be treated will be packaged and stored.

2. Is the proponent aware of the Independent Panel of Intractable Wastes set up by the Governments of New South Wales, Victoria and the Commonwealth to look at various aspects of intractable waste disposal? Is the proponent aware that this panel is likely to report its findings early this year?

2A. The proponent is aware of the Independent Panel of Intractable Wastes and has reviewed the draft model of Intractable Waste Regulations and the draft Memorandum of Understanding. It is understood that the panel is gathering information on the types and quantities of intractable waste within Australia with a view to examining the potential establishment of a high temperature incinerator. If the information gathering process and public enquiry reveals that a particular centralised technology - such as storage or high temperature incineration - is found to be appropriate for disposal of any categories of intractable waste, the Independent Panel will prepare or approve consultant briefs for further research, supervise all necessary environmental studies, including an environmental impact statement, and prepare final recommendations to the Ministers. As public enquiries are still proceeding it is unlikely that any recommendations will be made until 1993.

3. Is the proponent prepared to wait for the findings of the above groups before proceeding with its proposal?

3A. The proponent considers it inappropriate to wait for the findings of the Australian and New Zealand Environmental Conservation Council and the Independent Panel of Intractable Wastes. This is because the current proposal by the proponent does not involve wastes that are to be produced in the future or the use of a facility within Australia in the future. Furthermore, the proponent considers it important that the holders of intractable wastes who have a desire to

solve their current storage problems have the option to do so in an environmentally safe manner at todays costs rather than leave these problems to some future date at unknown costs.

Ethics of Exporting Intractable Wastes for Incineration

4. Given that the export of intractable waste could be seen as an ethical issue, what is the proponent's position on the issue?

4A. The proponent considers the export of the waste materials to be ethical provided it is performed in accordance with the relevant laws governing such matters in both the exporting and importing countries.

The proponent considers it ethical to utilise proven destruction facilities in another country provided that country finds the receival and destruction of the waste materials on its territory acceptable. In addition the proponent considers that destruction in the receiving country should be in a manner that would be approved of if it were to occur in the country of origin. It is understood that the Rechem plant is required to operate at levels of efficiency approximating those that have been approved of by the Western Australian Environmental Protection Authority for the proposed high temperature incineration at Koolyanobbing, this being a Destruction and Removal Efficiency of 99.9999%. In fact the selected overseas incineration facilities operate to a Destruction and Removal Efficiency of 99.99995%. On this basis the proponent finds the export of the waste materials described in the PER as ethical.

Permits to Export Intractable Wastes

5. Does the proponent have a permit to export intractable waste and if so when will it expire?

5A. The proponent has a permit issued by the Federal Government to export intractable waste for destruction in the United Kingdom. The existing permit is numbered 11 and is due for renewal on the 15th August 1992. Permits are reissued every six months by the Federal Government.

6. Is the proponent aware that a total ban on the export of intractable wastes from Australia may come into being in the next few years and as a consequence is the proponent trying to ensure it can beat the ban by getting approval to export as soon as possible?

6A. The proponent is not aware of any proposals to totally ban the export of intractable wastes from Australia in the future. As such there is no perception that approvals need to be achieved to pre-empt such a ban.

The proponent has been exporting intractable waste from Australia for four years in order to provide a solution to the long term problem of storing and handling PCB and organochlorine wastes. The proponent considers it prudent and proper to have the relevant approvals for Western Australia in place in order to provide a solution to achieve this with respect to banned pesticides and PCBs within the State.

Present Research

7. Is the proponent aware that research (chemical, fungal, genetic, bacterial and plasma arc treatment) into the destruction of intractable wastes indicates that there may be a solution to the problem of disposal within five years? Does the proponent know the likely time that these projects will be concluded? Is the proponent prepared to await the results of these research projects before proceeding with the proposal?

7A. The proponent is aware of various lines of research which seek alternate methods for the destruction of intractable wastes. The proponent is not convinced that the processes under investigation will prove technically or economically feasible nor that they will achieve the efficiencies of destruction on a large scale as currently achieved by high temperature incineration or be able to destroy the variety of solid and liquid waste materials in Western Australia.

Storage of Waste

8. The PER indicates that storage is safe. The proponent, however, indicates that the main reason for the proposal is the potential for fire at the existing stores. Could the proponent clarify whether present storage is or is not a problem and what is the need for the proposal if storage is safe?

8A. It is acknowledged that the present storage of intractable wastes in Western Australia is approved by the EPA. Requirements for storage include fire systems, alarms, and security fences and if these installations achieve the required function the risk posed by fire to the waste materials is minimal. However, the possibility of a fire remains despite these features especially as the waste material is stored in numerous different locations and as this storage may be over an indefinite period. Destruction of the wastes removes this continuing possibility.

With regard to banned pesticides many are liquid and are corrosive and thus react with the drums in which they are stored. This necessitate repackaging and handling and control of leaks on a continual basis. The requirement for repeated repackaging results in increased risks associated with worker exposure and accidental spillage. Destruction of the waste materials removes this risk.

9. Is the proponent willing to make a commitment that on-wharf storage (at Fremantle Port) will not be required? Has the proponent approval to store waste in the Port of Fremantle for three days as suggested in the PER. If so, who will be responsible for the waste whilst in storage?

9A. It is an established practise in all ports of Australia that are involved in the export of intractable waste, to pre-receive containers of waste, packaged in accordance with the regulatory requirements, at the export wharf up to 3 days prior to the vessels arrival. As detailed in the PER, the port operator will be given prior notification of the arrival of the containers. The containers will be set down in a secure and safe area under the control of the Australian Customs Services and the wharf operator. Co-ordination will ensure that the time spent on the wharf will be minimised. Reference should also be made to the answer to question 11.

10. Are any wastes which are the subject of this proposal stored in the Municipality of Fremantle?

10A. The proponent is not aware of any intractable wastes currently stored in the municipality of Fremantle. However, that does not imply that there are no intractable wastes in the Fremantle municipality and it may be that these will be identified or declared at a later date.

11. Is the proponent aware that if it takes ownership of waste in the Municipality of Fremantle and stores it in the Municipality, it will have to notify the Council as soon as possible? Does SECWA have intractable waste stored in the Municipality of Fremantle. If so has it approval from the Council to do so. Has SECWA or the proponent approval from the Department of Mines to store containers outside the existing SECWA storage areas? If not, where will the containers be kept before being loaded onto ships? Is the proposed interim storage approved by the Department of Mines and the EPA? Will such interim storage hold large packages of waste?

11A. The proponent does not propose to take ownership of any waste materials described in this proposal. The proponent is not aware that SECWA has any intractable wastes stored in Fremantle and has no intention of storing wastes outside of any existing SECWA areas. Containers will be loaded at the current storage location of the waste materials and then transported directly to the wharf where they will be set down and then transferred to the ship. The proponent is of the opinion that this setting down in the predetermined secure area of the container on the wharf represents a part of the transport process where the container is in transit.

12. Is the proponent aware that the owner of any premises in the Municipality of Fremantle which is currently used as a warehouse/storage of intractable waste is required to notify the Fremantle Council as soon as possible and have it approved. Has the proponent Municipal approval to store waste in the Port of Fremantle?

12A. There is no intention to store intractable wastes within the City of Fremantle for any substantial period of time and it is not proposed to consolidate any small batches of waste material within the City of Fremantle.

13. Has the proponent considered encasing the waste and storing the waste as is the practice in the nuclear industry?

13A. The encasing and storage of the waste materials would only disperse the hazardous waste amongst a greater volume of inert material. This would result in a greater volume of waste material which would ultimately require transportation and destruction and would not be a final solution to the problem of disposal. Consequently the proponent is not proposing encasement and storage.

New Wastes

14. Is there any provision for dealing with new wastes (as yet unidentified) within this proposal?

14A. The proposal as described in the PER includes waste materials containing organochlorine pesticides and PCBs and some specific quantities of these wastes that are yet to be included in any audit on wastes held within the state. Thus provision is made for unidentified waste materials.

It is not intended that this proposal would include newly produced waste material from industrial or other activities in the future nor any wastes other than PCBs and agricultural pesticides. The proponent's aim is to provide a solution for the disposal of intractable PCB waste and agricultural pesticides that are either stored or are still in use but are about to be decommissioned.

15. After exporting the wastes subject to this proposal, is it likely that the proponent will submit another proposal to the EPA to export other types of intractable waste for disposal overseas?

15A. The proponent's business is the handling, transport and disposal of hazardous waste and thus it is feasible that other intractable waste materials that can be satisfactorily destroyed overseas will be handled by the company. If required proposals to transport these materials will be referred to the EPA. Appropriate licences would also be applied for from the Federal Department of Arts, Sport, The Environment, Tourism and Territories.

The proponent is already involved in the development of systems and procedures for the collection and destruction of halons and CFC's. Such gases have been identified as harmful to the ozone layer and are to be withdrawn from services in fire extinguishing equipment and refrigeration by 1995.

Ownership of Waste

16. The issue of ownership is of general concern. Given the diversity of owners and nature of the waste, and the possibility that a whole consignment could be rejected because some waste is off-specification, could the proponent explain how it would manage the return of the waste to Australia, who would own it upon its return and how the waste would be redistributed to the original sources. Has the proponent informed the owners of the waste that problems with ownership and return of waste to Australia could occur if waste were rejected in the UK?

17. If a whole consignment of waste were rejected because some waste was off-specification, how would the proponent explain to those owners of on-specification waste within that consignment that it was rejected and how would the proponent ultimately deal with the disposal?

16A & 17A.

The possibility of waste being rejected because it is off specification is considered highly unlikely. This is because all waste materials will be assessed prior to export to ensure that they are within specification. This assessment will include the chemical analysis of any waste materials that are considered suspect prior to repackaging. If the waste material is not suitable for destruction then it will not be accepted by the proponent in Australia.

In the highly unlikely event that a drum of off specification waste was included in a container (consignment) then it would only be that drum that would not be acceptable by the incinerator, all other material contained in the consignment would be accepted and destroyed. The off specification drum would then be returned to its original owner in Australia, with the return movement being handled in accordance with international shipping protocol and liaison with the Minister for Arts, Sport, The Environment, Tourism and Territories and the Western Australian EPA.

The owners of all the drums are clearly identified through drum registration and numbering procedures as detailed within the PER. All the clients of the proponent are aware of the possible return of waste material and this possibility is addressed in the proponent's standard terms and conditions of contract.

18. To simplify the issue of ownership of waste, is the proponent prepared to take title of the waste and if not, why?

18A. The proponent is not prepared to take title of the waste. This is because in the unlikely event that some or all of the wastes were not accepted for destruction, Carpentaria would then be responsible for them. This is unacceptable to Carpentaria and could be seen by others as a way of transferring ownership of the wastes for purposes other than their proper disposal. Reference should be made to the PER where this issue is discussed in full.

Analysis, Labelling and Packaging of Waste

19. What tests will be carried out to ensure that no waste is off-specification? Will the proponent use NATA registered laboratory in Perth to analyse its wastes?

19A. Analytical testing utilising a NATA registered laboratory will be made of materials who's composition is suspect for some reason. The parameters tested will depend on the reason for the suspicion that the waste materials would not meet the specification of the incinerator.

20. What management procedures will be employed to ensure that packaging of non-compatible wastes does not occur?

20A. The packaging of the wastes by competent personnel and in accordance with the statutes described in the PER will ensure that incompatible wastes are not packaged together in an inappropriate manner.

21. Is the proponent aware that although the Australian Code for the Transport of Dangerous Goods by Road and Rail and the Dangerous Goods (Road Transport) Regulations both prescribe PCBs as Class 6.1(a) - Poisonous Substances, both the IMDG Code and the UN Recommendations on the Transport of Dangerous Goods list PCBs as Class 9 - Miscellaneous Substances? How does the proponent intend to deal with the issue?

21A. The proponent is aware that under the Australian Code for the Transport of Dangerous Goods Regulations and the IMDG Code, that PCBs are classified as Class 6.1(a) and Class 9 respectively.

Accordingly, in our PER on Page 15 under the title "Shipping Containers" it states:

The International Maritime Dangerous Goods Code encompasses the international convention for safety for life at sea, requires additional labels on the international shipping containers. These will be:

i) Class 9 label for PCB, in addition to the Class 6.1(a) for inland transport in Australia.

ii) "Marine Pollutant" label for PCBs.

22. Where will repackaging to the standard prescribed regulations be undertaken?

22A. Section 3.2 Preparations for Transport of the PER addresses the matter of packaging and within 3.2.1 the proponent states -

"liquid waste materials such as PCB liquid and PCB contaminated solvents will be packaged at their current locations into new, clean, heavy duty 205 litre drums that have passed leak and pressure tests. The drums will be of a type that

meets the requirements for approval by the Australian Code for the Transport of Dangerous Goods by Road and Rail for the transport of Packaging Group II material (medium danger) and will have the necessary markings to indicate that approval.

Solid waste materials include solid pesticides, PCB solids and PCB contaminated equipment. Smaller items of this type will be packaged in the same way as the liquids".

23. Has the proponent ever had part or full consignments of waste rejected because of inadequate packaging? If so, why and when did it occur and what was done to remedy the situation?

23A. The proponent has never had part of, or full consignments of waste rejected because of inadequate packaging.

Transport

24. The proponent noted in the PER that the waste is relatively safely stored at present. The proponent also noted that the major potential impacts are related to transport. Why then is the proponent proposing to transport the waste?

24A. The proponent has made no statement regarding the relative safety of intractable wastes stored in Western Australia. The only statement made in relation to current packaging and its state is that " the vast majority of the waste materials are packaged in 205 litre drums, however many of these drums are not of an approved type for the export of the waste materials. In addition some are overfilled, leaking, or showing signs of deterioration and thus need to be repackaged." The proponent is of the opinion that continued storage of the waste materials at a number of locations throughout the state poses a higher risk of major accident in the long term than transport of the material for export and destruction. Transport is necessary to achieve destruction by high temperature incineration thereby removing the risks associated with long term storage.

25. Why has the proponent chosen transport routes which correspond with the major traffic routes in the State? Why has the proponent not chosen routes which carry less heavy goods traffic?

25A. The transport routes chosen by the proponent are routes that incorporate roads and highways specifically designed to carry heavy transport vehicles safely. Accordingly, it is considered more prudent to utilise these routes than roads of lesser design as this could increase the risk of mishap.

26. Can the proponent clarify why it infers that a spill during transport does not pose a major threat to the environment and the public? The proponent infers that the transport (spills and leaks) is the major issue which has a potential to impact on the environment and humans.

26A. The proponent agrees that a spill of waste material during transport has the potential to be a threat to the environment and the public if not handled in a manner that is responsible and in accordance with statutory requirements. However, such a spill could also occur at one of the many storage locations throughout the State given the state of some current packaging. The methodologies of dealing with spills and leaks during transport is detailed in the PER. These methodologies are designed to minimise the potential threat of a spill or leak to the public and the environment. Reference should be made to pages 24 and 25 of the PER.

27. In previous operations of this sort, has the proponent ever had a spill, a fire or an explosion of intractable waste during transport operations?

27A. The proponent has transported 2500 tonnes of intractable waste and to date has not experienced a major spill, fire, or explosion during transport operations.

28. Could the proponent explain why it does not believe that a spill in a built-up area is not a high risk to the community?

28A. The proponent believes that a spill of waste material has the potential to be a threat to the environment and the public if not handled in a manner that is responsible and in accordance with statutory requirements. The methodologies of dealing with spills and leaks is detailed in pages 24 and 25 of the PER.

29. Is the proponent aware that by transporting the waste in the Fremantle area that it is placing a large number of the population at risk?

29A. The proponent is of the opinion that it is not exposing people to an unacceptable risk by transporting the waste material through populated areas. This is because the waste materials will be packaged and transported in accordance with state and federal regulations that apply to dangerous goods and specifically to PCB's and organochlorine wastes. These regulations are formulated to ensure that the risks posed by the transportation of hazardous waste are not unacceptable with regard to the environment and the general public.

In assessing the risk posed by this proposal it should be noted that much of the waste material is composed of contaminated solids such as former waste drums and contaminated soil and accordingly they have little potential to spill or leak. The high integrity of the packaging and the emergency procedures that have been detailed in the PER are considered sufficient to conclude that their transportation through populated areas does not pose an unacceptable risk to people.

30. Why has the proponent not chosen rail for the transport of intractable wastes through rich agricultural areas and the metropolitan areas of Perth and Fremantle?

30A. The choice of road transport as opposed to rail transport is one of logistics. The waste materials are widely dispersed throughout the State and most are not adjacent to suitable rail lines. To transport the waste materials by rail almost all would have to be transported by road to a rail siding, some over a considerable distance. Transportation of small lots by road and rail would result in the double or triple handling of the waste thus increasing the risk of accidents.

31. Is the proponent prepared to submit the proposed routes for waste transport within the Municipality of Fremantle to the Fremantle Council, and have them approved by the Fremantle Council before the proposal proceeds?

32. Is the proponents prepared to submit a timetable for waste transport within the Municipality of Fremantle to the Fremantle Council, and have them approved by the Fremantle Council before the proposal proceeds?

31 & 32.

The proponent is not aware of any statutory requirements which relate to the transportation of the waste materials through the City of Fremantle. The proponent has, however, committed to informing the EPA of all movements of the waste materials and this is to be done to the satisfaction of the EPA. In addition, emergency services will also be advised.

33. Is the proponent going to transport intractable waste by rail across the Swan and Helena rivers in the Midland area, given that they are environmentally sensitive areas?

33A. The proponent does not propose rail transportation of the waste materials whatsoever.

34. Has a ship containing waste on behalf of the proponent ever been refused entry to the United Kingdom? If so, what was the reason?

34A. No ship on which the proponent has consigned waste has even been refused entry into the United Kingdom.

35. Why does the proponent believe that its level of packaging is adequate in the case of a severe accident during transport?

35A. The proponent believes that its level of packaging is adequate in that it meets all of the requirements and regulations under the Australian Code for the Transport of Dangerous Goods by Road and Rail as well as those regulations as laid down by the International Maritime Dangerous Goods Regulatory body. These regulations have been developed to meet specific transportation requirements relating to safety and the prevention of release of the wastes into the general environment.

In addition, the proponent has proposed that all waste materials packaged in IMDG approved drums shall be placed in leak proof steel bins and that these

steel bins will be placed inside a steel shipping container. Thus, the wastes will be triple packaged. Accordingly the proponent believes that the level of packaging will be adequate to minimise the risk of a spill or leak during transportation even in the event of a severe accident.

36. For transport of the wastes from the Pilbara, would the proponent consider using the Great Northern Highway? It is believed by some members of the public that the coastal route is more populated, more vulnerable to pollution and the inland route is less of a risk from flooding. If the proponent will not consider this, why not?

36A. The proponent has chosen the coastal route on the basis of its overall condition and convenience of use. It is the opinion of the proponent that the proposal does not pose unacceptable risks to the public or the general environment by selecting the coastal road, however, the proponent is willing to consider the Northern Highway.

37. Will the proponent make a commitment that will ensure adequate liaison between road transport and the container terminal personnel (at the Port of Fremantle) and also ensure that there will be no delays in accessing the relevant terminal at the port?

37A. The proponent has working arrangements in ports throughout Australia whereby liaison is maintained between the proponent company, its road transport operations, and the container terminal personnel where goods are to be received. This protocol and procedure will include the Port of Fremantle and all deliveries made will be by prior arrangement and consultation, and in an agreed manner. The EPA has the ability to require this as a result of the commitments made by the proponent.

38. Will the proponent make a commitment to give specific emergency response training for relevant personnel within the Port of Fremantle?

38A. The proponent is prepared to give specific emergency response training to relevant personnel within the Port of Fremantle and to provide induction training and awareness of the categories of intractable waste. Furthermore, the proponent will provide a briefing on the overall packaging, collection and destruction of the waste through the high temperature incineration process.

39. Why does the proponent believe that an accident would not happen to a ship carrying intractable wastes off the coast of Australia? Why does the proponent not address in detail the emergency response for an accident at sea? Will the ship carrying the waste be restricted to sailing in certain weather conditions? If the ship encounters problems off the Australian coast, which port would it enter?

39A. The proponent acknowledges that no transport, storage or handling activity can be guaranteed to be without risk of accident. However, the risk of an accident

that would result in the release of the waste materials to the environment from a ship is considered minimal. This is because of the following:

- All waste is carried in containers, which are approved for the international transportation by sea, and are adequately secured within and on vessels for marine operations.

- There are many vessels operating in the Australia to Europe shipping trades carrying containers and there are no reported maritime accidents of these vessels or losses of containers overboard.

With regard to emergency procedures for an accident at sea, these are fully addressed by maritime regulations such as the International Convention for Safety of Life at Sea.

Once the ship departs port safety will be the responsibility of the ships master. Vessels carrying waste are not restricted to certain weather conditions, however, all operations of the vessel are under the control of the master in accordance with the various maritime regulations.

The vessels that will transport the waste materials from Fremantle to the United Kingdom sail directly for South Africa when leaving Fremantle and thus, while not pre-empting the decision of the master of the vessel, in the very unlikely event of any problem the vessel would return to Fremantle or continue onto South Africa.

Efficiency and Reliability of Incineration

The proposal referred to the EPA involves only the repackaging and transport of waste materials. Proposals to export wastes from Australia for destruction are the jurisdiction of the Department of Arts, Sport, The Environment, Tourism, and Territories. This federal authority reissued a licence to export the subject material in the name of the proponent, Carpentaria Environmental Services in February 1992. However, the proponent is happy to answer the following questions on the incineration process in an effort to provide information to the general public and to further informed debate on the subject.

40. Do the relevant Local Government Authorities and Her Majesty's Inspectorate of Pollution in the United Kingdom find the incinerators to be used in this proposal meet with their regulatory requirements and satisfaction?

40A. Her Majesty's Inspectorate of Pollution (HMIP) regulates both of the Rechem Incinerators at Fawley and Pontypool. Both incinerators consistently meet the actual and proposed Consent limits. For those emissions that are regulated, HMIP receives monthly reports regarding the emissions and have found them to be satisfactory and in compliance. Rechem routinely consults with HMIP on all matters relating to regulated emissions, it has frequently carried out emission

testing under the observation of HMIP, and permitted emission testing by the contractors named by HMIP. The results of all of such tests have been in compliance and have met the approval of HMIP.

41. Is the proponent aware that Greenpeace and others question the Destruction and Removal Efficiency (DRE) for the Rechem HTI as stated in the PER on the grounds of methodology employed in monitoring. Can the proponent clarify its monitoring protocol. Could the proponent explain why the emissions at Rechem incinerators have been continually criticised in the media. Is there any basis for this criticism? If not now, what changes have been implemented? Will the proponent nominate the choice of Rechem incinerator it intends to use, and in order of preference? Would the proponent explain the reasons for the preferences.

41A. The proponent is aware that Greenpeace has embarked upon a campaign of opposition to all forms of incineration and to the Rechem High Temperature Incinerator.

The monitoring carried out by Rechem is in accord with and in excess of that required by the UK Regulatory Authorities who superimpose their own independent checks.

The fact that criticisms have been aired in the media is not evidence in itself of factual or scientific grounds for criticism. The operation and effectiveness of the site is stringently monitored by the relevant authorities.

Purely operational parameters govern the choice of the Rechem incinerator to be used for any accepted wastes.

42. Is the continuous monitoring of air emissions from the high temperature incinerator carried out? Are the monitoring methodology and results available to the public?

42A. Components of the incinerator emissions which are suitable for continuous monitoring are measured in this way. This includes, for example, sulphur and nitrogen oxides, CO, CO_2, O_2 particulate, HCl, and various physical parameters. The great majority of testing is carried out by batch sampling, using procedures which have the approval of all cognisant regulatory authorities.

The results of monitoring are made available to the public at meetings of the local Liaison Committee in Hampshire. However, public release has been precluded in the Pontypool area because the Local Authority has not agreed to form a Liaison Committee.

43. Are products of incomplete combustion (PICs) present in the air emissions after scrubbing? If so, what are their likely environmental impacts? Is the proponent

aware that gas emissions from incinerators cause a build-up of greenhouse gases?

43A. It has been demonstrated at the Fawley incinerator (for example) that the products of incomplete combustion (PICs) present in the air emissions are in fact lower than the concentration of these substances in the ambient air. Rechem routinely carries out measurements for the total quantity of PICs and has consistently shown that the quantities of these materials are lower than background levels.

44. If waste disposal by incineration is safe, why does the proponent not use a portable incinerator in Western Australia to dispose of wastes?

45. Is the proponent aware that the main reason why there is no high temperature incinerator in Australia is because of public opposition?

44A. & 45A.

The concept of a portable incinerator is not new to Western Australia. In 1987 the Health Department of Western Australia obtained environmental approval for the establishment of a high temperature incinerator near Koolyanobbing from the the Western Australian EPA. Subsequently, the proposed site was relocated to east of Mt Walton. However economic analyses on the project showed that such an incinerator at the latter site would be prohibitively expensive to establish and operate in Western Australia given the small volumes of material stored in the State. This was the main reason why a high temperature incinerator was not established in Western Australia.

46A. Is the proponent aware that incineration of intractable waste does not destroy all the wastes but rather transforms them into more toxic forms such as furans and dioxins, and then disperses them to the atmosphere?

46. High temperature incinerators in The United Kingdom are required to operate at Destruction and Removal Efficiencies of 99.99995% and this destruction efficiency includes the destruction of furans and dioxins. Incineration involves converting the intractable wastes into simple chemical compounds before their release to the environment. It is true to say that all forms of combustion will produce dioxins, albeit in exceedingly small quantities, however, the Rechem incinerators consistently meet the proposed emission limits for these substances by countries in the EEC.

47. Is the proponent aware that of the thousands of by-products of toxic waste incineration, thousands of compounds are formed but only a few have been identified so far? Consequently how can the proponent be sure that its emissions are not causing an environmental or human impact.

47A. The proponent is not aware of any reliable scientific information which indicates that there are unacceptable impacts as a result of the release of the by-products of high temperature incineration of intractable wastes. The levels of unburned

organic materials in the stack gases at the incinerators are routinely shown to be lower than the quantities of similar materials found in normal ambient atmospheres.

48. Has the proponent ever had an explosion or fire, malfunction, spill or unacceptable emission at any of Rechem incinerators? Has such an event ever caused an environmental or human impact? If so what was that impact?

48A. Any such event has been dealt with and reported to the relevant authorities who have investigated as required. There is no evidence of any significant environmental or health impact having been caused by any such event at Rechem's sites, which have records of many years of uneventful, safe operation.

49. Where are the solid or liquid residues from incineration disposed?

49A. The solid wastes consist of a slag of molten metal that has resulted from the incineration of contaminated containers such as drums. These are tested for residual contaminants and if they meet the required criteria they are disposed of in an approved landfill. Liquid wastes from the incineration process are either fed back into the incinerator or disposed of in evaporation ponds if they meet residual contamination criteria.

50. Why has the proponent not discussed the disadvantages of incineration given the widespread public concern with the Rechem HTI?

50A. A discussion on high temperature incineration and other methods of waste destruction was provided by the Health Department in its 1987 proposal to establish an incinerator in Western Australia. That proposal was approved by the EPA. The present proposal referred to the EPA involves only the repackaging and transport of waste materials. Proposals to export wastes from Australia for destruction are the jurisdiction of the Department of Arts, Sport, The Environment, Tourism, and Territories.

The Rechem incinerators operate within a strict licensing and regulatory regime utilising high temperature incineration which is known to be the best available method for the destruction of intractable PCB and organochlorine waste materials.

51. Is the proponent aware that Austria and Belgium have banned the export of waste to the Rechem incinerators because of public concern. If so, what assurances can the proponent provide the owners of the wastes that the waste will be exported to a facility whose operations are technically efficient and acceptable to the community in that location?

51A. The proponent understands that the suspension of exports was made pending clarification of the issues raised. It is understood also, however, that further evaluation by the countries involved has and will result in recommencement of

exports from these countries. The proponent is of the opinion that the above does not indicate a lack of technical efficiency in the operation of the incinerator.

52. Given that two countries (above) recently banned the export of waste to the Rechem facilities on technical grounds, can the public have confidence in the regulatory Authorities in the United Kingdom who permit the import and destruction of the waste?

52A. The proponent see's no basis on which to have a lack of confidence in the Regulatory Authorities of the United Kingdom.

53. Her Majesty's Inspectorate of Pollution has told Rechem International that its static hearth incinerator at Pontypool is unlikely to satisfy the requirements of the new system of integrated pollution control (IPC) in the UK. It also revealed the current situation must be resolved under the relevant 1990 Act prior to authorisation of applications under IPC. Will the proponent provide a commitment that this situation has been resolved before it exports waste from Western Australia.

53A. Along with much of industry in Britain, Rechem is currently preparing its applications for authorisation under the forthcoming system of Integrated Pollution Control. Discussions concerning these future standards have been taking place with HMIP for some time and are ongoing. Meanwhile, a number of options are under evaluation and it is anticipated that decisions and agreement will be reached in accord with the statutory timetable as laid down.

At all times HMIP holds and can exercise powers to ensure the Rechem operations conform to all existing standards in force.

54. Will the proponent provide assurances to the owners of the waste that their material will be satisfactorily disposed of by Rechem International facilities in the UK. If the proponent cannot give that assurance, what is the proponent's contingency plan?

54A. In entering into contracts to dispose of the materials the proponent is giving all the assurances to the owners that it can that the material will be properly disposed of. There is no current or foreseeable obstruction to the safe and effective destruction of the material in question at Rechem International facilities in the UK, in line with all legal and regulatory criteria. If effective destruction could not be achieved the waste materials would be returned to the owners in Australia as a last resort.

55. Have the owners of the waste in Western Australia been informed of the problems encountered by Rechem at its incinerators and local opposition from councillors and members of the House of Commons? What assurance will the proponent give to the owners that their waste is acceptable within the disposal licence conditions applied to the incinerator?

55A. Owners of waste materials that have entered into contracts with the proponent are aware of the location of the proposed high temperature incinerator and the opinions of some local residents and politicians. The proponent has secured approvals for the destruction of specific quantities of waste materials from the local authority which has jurisdiction over the acceptance of waste by the incinerator. Thus the proponent has given assurances to owners of the waste materials that the local authority will accept the waste materials exported from Western Australia for destruction.

Effects of Incineration on Local Communities and Consultation

56. Were the public able to comment on the granting of the Commonwealth Government's permits to export intractable waste to the United Kingdom?

56A. There is no formal process through which the public can comment on the granting of federal permits for the export of intractable wastes to the United Kingdom. However members of the public are able to write to the relevant Minister who is responsible for issuing the permits.

57. Has the proponent consulted with the residents in the locality of the incinerator. If not, does it intend to do so and when?

57A. It is suggested that residents in the locality of the incinerator can most appropriately liaise with their local authority which is responsible for issuing permits for the destruction of the material or with management and technical staff of the incineration facility.

58. Is the proponent aware that there are known health problems in the communities surrounding toxic waste incinerators in the UK resulting from toxic gas emissions? Is the proponent aware of claims that emissions from HTIs in the UK have cause rare eye deformities in babies and high levels of PCBs in duck eggs, soils and farm animals.

58A. It has not been established that there are any health problems in communities surrounding toxic waste incinerators in the UK. Furthermore, studies performed by the Ministry of Agriculture, Fisheries and Food (MAFF) have demonstrated, for example, that operation of the incinerators has not caused any increase in the level of the relevant chemicals above background levels as evidenced by the survey of milk and other food products. Levels of PCBs in duck eggs, soils, and farm animals have been entirely consistent with background levels both in the UK and the rest of Europe. The results from the sampling of duck eggs from one particular source have so far proved inexplicable and are currently under the scrutiny of an independent scientific study team.

59. Has any member of the local community in proximity to the proposed incinerators ever been denied access to monitoring results associated with the activities of the incinerators?

59A. The proponent has received advice from Rechem that at no time has access been denied to monitoring results associated with the activities of the incinerators. All monitoring results are forwarded to the monitoring authorities as required by law. Additionally, Environmental Monitoring results have periodically been published in the scientific press.

60. The proponent states and infers that HTI is an acceptable method of disposal. Is HTI acceptable to the local community around the proposed Rechem incinerator facilities at Pontypool and Fawley and if so on what evidence does it base its opinion?

60A. Liaison Committee Meetings have been held at Roughmute in Scotland and Fawley in Hampshire for almost ten years, and information provided to the public on these occasions has led to a widespread acceptance of the presence of efficient high temperature incinerators. In the Pontypool area, where the local Council has not participated in the establishment of a Liaison Committee, it has not been possible to achieve the same level of acceptance through a formal liaison process. However, given that the local council represents residents in the area and that the council has already granted approval for the destruction of the subject wastes, it is deduced that the majority of residents find this activity acceptable.

Public Consultation Within Western Australia

61. What public consultation, if any, has the proponent undertaken when preparing the PER on the proposal?

61A. The proponent has undertaken public consultation in response to advice from the Western Australian Social Impact Unit. Consultation has included union representatives, and conservation groups. Discussions have been held also with key government departments including the Health Department of Western Australia and SECWA, and known owners of waste in Western Australia.

Monitoring of Personnel Involved in the Transport and Storage Operation

62. Does the proponent propose a program to monitor the health of personnel involved in the transport and handling of the waste material?

62A. The proponent proposes to conform to all the Acts and Regulations that are relevant to the implementation of this proposal regarding the health and welfare of workers. This will include examinations and tests by medical practitioners should this be required.