

**Disposal by shaft entombment or trench burial of a  
range of intractable wastes at the intractable waste  
disposal facility, Mt Walton East**

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**Health Department of Western Australia**

**Report and recommendations  
of the Environmental Protection Authority**

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 726  
December 1993**

## 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 report.

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 and 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  
12 Floor Dumas House  
2 Havelock Street  
WEST PERTH WA 6005

## CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on 23 December 1993.

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## Summary

The Health Department of Western Australia, the proponent, operates an integrated waste disposal facility (IWDF) at Mt Walton about 75km north-east of Koolyanobbing in the Shire of Coolgardie. The site lies in the middle of the geologically stable Yilgarn Block.

The Health Department has requested approval to dispose of a broad range of intractable wastes at the site by shaft and trench burial in anticipation, in some instances, of such wastes requiring disposal.

The Health Department believes this proposal is consistent with the spirit of the existing approvals for the site which have been issued by the Minister for the Environment.

The present proposal is for disposal of contaminated soils, sediments, equipment, clothing, containers, proprietary mixes and pure compounds. Contamination could include heavy metals, intractable fossil (tars) and halogenated (chlorinated pesticides) hydrocarbons, other pesticides, and non-liquid PCB contaminated equipment (drained capacitors and transformers). Wastes precluded from this proposal include explosive, highly flammable or highly reactive materials, gases, and highly volatile liquids and high level radioactive materials.

The proposal was referred to the EPA in July 1993. The EPA set the level of assessment at Consultative Environmental Review (CER). The CER document was released for a 4 week public review period which commenced 18 October and closed on 15 November 1993.

The EPA considers that this proposal clarifies and expands on the extent of existing approvals with respect to the nature of waste that could be deposited at Mt Walton. In previous assessments the EPA found the site to be most appropriate for waste disposal because of its geological stability, deep impermeable clay soils, low rainfall, low land erosion potential, and remoteness.

In its assessment, the EPA considers that five issues need to be highlighted. They are

- clarification of the general types of waste proposed in the CER;
- mode of transport and appropriate use of emergency vehicles to accompany trucks carrying waste to Mt Walton;
- use of alternative technology to destroy intractable waste;
- existing storage of intractable waste in the State; and
- long-term auditing of intractable waste generation, movement and disposal in the State.

In response to EPA's request, the proponent has clarified the types of waste it anticipates disposing at Mt Walton (Appendix 1).

In reaching its conclusion, the EPA recognised the number of approvals already granted to the Health Department for this waste disposal facility, including its suitability for intractable waste disposal. The proponent has made a comprehensive list of commitments covering the environmental issues raised during previous assessments and reiterated the relevant commitments in this proposal.

Accordingly, the EPA recommends that the proposal is environmentally acceptable and could proceed subject to the information given in the CER, in answers to questions raised during the assessment, commitments made by the proponent and the following recommendations.

### Recommendation 1

**The Environmental Protection Authority has concluded that the proposal to dispose of a broad range of intractable wastes (outlined in Appendix 1) at the Health Department's intractable waste disposal facility at Mt Walton by shaft and trench burial is environmentally acceptable, and could proceed as described in the Consultative Environmental Review and in responses to questions raised during the assessment, and subject to commitments given by the proponent (Appendix 3).**

In reaching this conclusion, the Environmental Protection Authority recognised the numerous assessments that the EPA has already carried out on the suitability of the site for intractable waste disposal and has found that this proposal falls within the spirit of previous assessments and approvals. The proponent has previously addressed the management of the site in its Environmental Management Plans and committed to manage the facility to the requirements of the Environmental Protection Authority.

The EPA recognises that as the issue of intractable waste disposal at Mt Walton evolves, the proponent may wish to make additions to Appendix 1. Accordingly EPA makes the following recommendation.

## **Recommendation 2**

The Environmental Protection Authority recognises that the proponent may request other intractable wastes (not identified at this time) for disposal. Accordingly, the Environmental Protection Authority recommends that if disposal of a new waste is proposed, the proponent should refer such a proposal to the EPA for assessment. Where the EPA finds the addition to belong to one of the classes of waste identified in Appendix 1 and to be environmentally insignificant, the addition could be approved without additional assessment and with details publicly available. However, where the addition is deemed to be environmentally significant, the EPA would expect a request for an amendment to the environmental conditions of approval for this proposal under Section 46 of the Environmental Protection Act.

The issue of mode of transport and use of emergency vehicles accompanying waste to Mt Walton by road has been assessed previously by the EPA for PCBs, mineral sands and low level radioactive materials. For the Rhone Poulenc proposal, rail transport was recommended for low level radioactive waste because of the large volume involved. In contrast, road transport for low level radioactive waste from hospitals was found acceptable because of the small volumes involved. For PCBs, EPA found road transport acceptable but the truck was required to be accompanied by an emergency vehicle.

EPA believes that the decision on mode of transport can only be made on a case by case basis following discussions with the Department of Minerals and Energy, and depending on the volume, form (solid or liquid), toxicity and proposed packaging. Further, the nature of emergency equipment would also depend on those factors, if required. The EPA considers the road transport of the wastes nominated in Appendix 1 to be acceptable.

The Environmental Protection Authority considers that the mode of transport (road versus rail transport) of waste to Mt Walton can only be considered on a case by case basis. Whilst the Environmental Protection Authority considers road transport is acceptable for the wastes nominated in Appendix 1, it believes that occasions may arise when large volumes of waste from unforeseen mining or industrial processes may require transport to Mt Walton. Accordingly, the Environmental Protection Authority considers that rail transport should be considered in the cases of transport of large volumes of waste.

The EPA is cognisant of the recommendations of the Independent Panel on Intractable Wastes, chaired by Dr B Selinger in 1992. The EPA supports the principle that alternative technologies for intractable waste destruction should be encouraged and that environmental costs of contemporary technology should be considered when comparisons are made with alternatives. Accordingly, the EPA does not consider disposal of intractable waste using secure landfill, including Mt Walton, as a panacea. EPA considers such disposal, albeit environmentally acceptable, as nothing more than secure storage. However, the EPA recognises also that for all the promises of alternate technologies being close at hand, few have been proved satisfactory. Consequently, the EPA regards disposal at Mt Walton as being a viable option for the intractable waste proposed.

### **Recommendation 3**

**The Environmental Protection Authority recognises that alternative destruction technologies are being developed at present. Accordingly, the Environmental Protection Authority recommends that if the Minister for the Environment issues an approval for this proposal, the approval should be reviewed after five years in the light of new methods of disposal or destruction becoming viable.**

The EPA is frequently requested by individuals and industry to help with the disposal of intractable waste. It is the statutory responsibility of the Health Department to ensure that waste management is properly undertaken in Western Australia. The EPA does not consider that the storage of intractable waste at numerous sites throughout the state is acceptable as the packaging and storage facilities cannot be properly monitored. The EPA believes that the Health Department should prepare a management plan which would indicate how it intends to be proactive in dealing with the backlog of intractable waste throughout the State. Such a plan would offer generators and present holders of waste confidence that the State can promptly and efficiently cope with the collection of old and the generation of new intractable waste and dispose of them properly.

**The Environmental Protection Authority recognises that there is existing intractable waste in storage in Western Australia. The Environmental Protection Authority considers the Health Department of Western Australia, which has statutory responsibility for waste management in the State, should prepare a strategy indicating how it intends to manage this backlog of intractable waste and offer new generators methods of disposing of intractable waste.**

The EPA believes that since the issue of disposal of intractable waste is with us forever, it is timely for the Health Department to develop a thorough audit system so that in years to come, managers of intractable waste will be left in no doubt as to the full history of all waste disposed of at Mt Walton.

### **Recommendation 4**

**The Environmental Protection Authority recognises that, as the disposal of intractable waste remains with us forever, a proper register of waste stored at Mt Walton and waste disposal location maps be kept. Accordingly, the Environmental Protection Authority recommends that the Health Department should keep records and disposal locations maps of all waste disposed of at Mt Walton. The Environmental Protection Authority recommends that, within six months of any approval for this proposal, the proponent should submit, and have approved by the Environmental Protection Authority such a recording system.**

# 1. Introduction

The Health Department of Western Australia, the proponent, operates an integrated waste disposal facility (IWDF) at Mt Walton about 75km north-east of Koolyanobbing in the Shire of Coolgardie. The site lies in the middle of the geologically stable Yilgarn Block.

The Health Department has requested approval to dispose of a broad range of intractable wastes at the site by shaft and trench burial. At this time, not all of these wastes are intended to be disposed of, but the Environmental Protection Authority (EPA) has considered whether the Mt Walton site could accept those materials. This forward thinking approach was suggested by the EPA to avoid the proponent having to request individual approval for each batch of waste on an 'ad hoc' basis.

All aspects of the site have already been environmentally assessed for intractable waste disposal. The Health Department believes this proposal is consistent with existing approvals for the site which have been issued by the Minister for the Environment. Amongst others, these approvals include provision for:

- high temperature incineration of PCB wastes and organochlorine pesticides; and
- trench burial of large volumes of low level radioactive waste from the processing of mineral sands.

Additionally, the Health Department has had three Environmental Management Programs (EMPs) for Mt Walton approved by the EPA after each having a six weeks public review period. They were:

- disposal of radioactive waste;
- transport and storage of wastes; and
- building of an access Road to Mt Walton

The EMPs include proposals for:

- storage in sheds of PCB wastes and organochlorine pesticides;
- shaft burial of low level radioactive waste from the temporary store at the Radiation Health Branch of the Health Department of Western Australia; and
- trench burial of waste mineral sands waste.

The proposal under consideration was referred to the EPA in July 1993. The EPA set the level of assessment at Consultative Environmental Review (CER). The CER document was released for a 4 week public review period which commenced 18 October and closed on 15 November 1993.

During the environmental assessment of the proposal the EPA utilised information supplied by other Government agencies, the public and the proponent. Additionally, officers of the EPA discussed environmental issues with interested members of the local community and revisited the site.

## 2. Description of the proposal

### 2.1 Background and need for the proposal

The Health Department has requested environmental approval to dispose of a broad range of intractable wastes at Mt Walton. This proposal anticipates an increasing and diverse demand on the Mt Walton waste disposal facility. The proponent wishes to avoid seeking individual approvals for each batch of waste as it is inefficient. The proponent believes this proposal is consistent with the spirit of the existing approvals for the site.

## **2.2 Anticipated types of waste for disposal**

The proponent anticipates new intractable wastes to include contaminated soils, sediments, equipment, clothing, containers, proprietary mixes and/or pure compounds. More specifically, it may include heavy metals (eg cadmium, lead and mercury and sheep dip containing arsenic), intractable fossil hydrocarbons (coal tar, saturated and unsaturated aliphatic and alicyclic hydrocarbons, aromatic hydrocarbons including polynuclear aromatic hydrocarbons, phenols, pyridine and other basic compounds, thiophene and related compounds, and char), halogenated organics (pesticides), other pesticides, and solid PCB contaminated equipment (drained capacitors and transformers) (Appendix 1).

Wastes precluded from this proposal include explosive, highly flammable or highly reactive materials, gases, and highly volatile liquids and high level radioactive materials.

## **2.3 Transport of wastes**

The proponent proposes to meet the requirements of the Explosives and Dangerous Goods Division of the Department of Minerals and Energy which regulates the transport of dangerous goods in Western Australia. Additionally the proponent intends to comply with its Environmental Conditions already placed upon it for the transport of the approved wastes to Mt Walton. These conditions relate to:

- packaging (levels of containment), handling (loading and unloading) and storage in transit.
- safety and mode of transport for specific wastes;
- emergency vehicles accompany trucks carrying intractable waste;
- spills (cleanup procedures) and fire;
- responsibility, emergency response and public consultation

## **2.4 Method of disposal**

Disposal of wastes by shaft and trench burial at Mt Walton has already been assessed for disposal of low level radioactive and mineral sands wastes.

The proponent proposes to solidify liquid waste by mixing with cement in steel containers before disposal. All wastes would be disposed of by shaft or trench burial, depending on the properties and the volume of the waste. Shafts with a diameter of 2m and up to 30m deep would be used for burial of small quantities of wastes, whilst trenches up to 15m deep will be used for burial of bulk wastes. All excavations containing wastes would be backfilled, shafts normally with concrete, and trenches with compacted powdered clay. Water shedding domes or similar will be constructed over buried waste for both shafts and trenches.

## **2.5 Monitoring**

Three EMPs produced by the proponent have previously been assessed by the EPA and found acceptable. These EMPs included proposed monitoring of the disposal site. Since those assessments, the proponent has been monitoring the site for nearly two years and for 18 months preceding the disposal of low level radioactive waste.

While the site is being actively used, the Health Department proposes to submit annual written reports to the EPA outlining the status of operations and the results of the monitoring programs.



### **3. Public submissions**

The EPA received nine submissions. (Appendix 2)

The principal issues raised in the submissions related:

- further assessment of the site for intractable waste disposal;
- support for the site as an intractable waste disposal facility;
- compliance with existing approvals;
- safety of road transport of intractable waste;
- shaft disposal for arsenic based wastes;
- nature of reporting and public review of reports;
- reporting after decommissioning of the facility;
- dangerous goods regulations for transport and storage;
- use of site for imported waste;
- disposal of liquid waste and PCB contaminated liquid wastes (nature of waste to be disposed);
- support for destruction by alternative technologies on site and Selinger report; and
- burial of organochlorines, PCBs or PAHs.

The proponent's answers to questions raised are given in Appendix 3.

### **4. EPA evaluation and findings**

#### **4.1 The proposal and previous approvals**

The EPA believes that when considering this proposal the extent of existing approvals with respect to the nature of waste that could be deposited at Mt Walton need to be understood. In previous assessments the EPA found the site to be most appropriate for intractable waste disposal because of its geological stability, deep impermeable soils, low rainfall, low land erosion potential, and remoteness.

#### **4.2 The environmental issues**

In this assessment, the EPA considers that five issues need to be highlighted. They are:

- clarification of the general types of waste proposed in the CER for disposal;
- mode of transport and appropriate use of emergency vehicles to accompany trucks carrying waste to Mt Walton;
- use of alternative technology to destroy intractable waste;
- existing storage of intractable waste in the State; and
- long-term auditing and recording of intractable waste storage, movement and disposal at Mt Walton.

#### **4.3 EPA's assessment**

##### **4.3.1 General**

The Authority has assessed the potential environmental impacts of the proposal, as described in the CER, and utilised additional information supplied by other Government agencies, the public

and the proponent. Additionally, officers of the EPA revisited the site and audited the Health Department's environmental management plan for disposal and storage at Mt Walton.

The EPA believes that amongst the community, disposal of intractable waste is a vexed issue. The issue will remain prominent as increasing amounts of intractable waste require disposal, and a backlog remains. It is important to ensure the public has confidence with respect to using the Mt Walton site as an intractable waste disposal facility. To this end, the EPA requested the Health Department to submit a more detailed list of wastes (Appendix 1) which it anticipates would be disposed of at Mt Walton. This request ensures the community is properly informed at the appropriate time (now) of the Health Department's intention. The EPA also believes the request will assist the proponent in more clearly defining its long-term intentions for the site.

Accordingly, the Health Department has submitted an amended list of wastes for disposal (Appendix 1). The Authority's assessment has been on the basis of this list.

The EPA finds that the proposed wastes can be disposed of (Appendix 1) at Mt Walton because of the integrity and security of the site. The EPA anticipates that other wastes not specifically mentioned in Appendix 1 but which fall into those categories (or derivatives) may also require disposal at Mt Walton at a later date.

In reaching this position, the EPA took into account the number of environmental approvals already granted to the Health Department for Mt Walton. In issuing previous approvals, the environmental integrity of the site and the very low degree of risk to humans was recognised. Further, other features which make the site ideal for intractable waste disposal include the arid climate, no shallow or potable groundwater, soil profile which would retard migration of leachate, if it were to occur, stable geology, low erosion potential during rainfall, sparse population, and no significant environmental or cultural features.

The proponent has made a comprehensive list of commitments covering the environmental issues raised during previous assessments and reiterated the relevant commitments in this proposal (Appendix 4).

Accordingly, the EPA recommends that the proposal is environmentally acceptable and could proceed subject to the information given in the CER, in answers to questions raised during the assessment (Appendix 3), commitments made by the proponent (Appendix 4) and the following recommendations.

## **Recommendation 1**

**The Environmental Protection Authority has concluded that the proposal to dispose of a broad range of intractable wastes (outlined in Appendix 1) at the Health Department's intractable waste disposal facility at Mt Walton by shaft and trench burial is environmentally acceptable, and could proceed as described in the Consultative Environmental Review and in responses to questions raised during the assessment, and subject to commitments given by the proponent (Appendix 3).**

**In reaching this conclusion, the Environmental Protection Authority recognised the numerous assessments that the EPA has already carried out on the suitability of the site for intractable waste disposal and has found that this proposal falls within the spirit of previous assessments and approvals. The proponent has previously addressed the management of the site in its Environmental Management Plans and committed to manage the facility to the requirements of the Environmental Protection Authority.**

### **4.3.2 Proponent's clarification of types of waste proposed for disposal**

The EPA recognises that the proponent may wish to add to the list of wastes given in Appendix 1 as new intractable wastes are identified. Accordingly, the Environmental Protection Authority believe that if an addition is proposed, the proponent refer the addition to the EPA for

assessment. Where the EPA finds the addition to belong to one of the classes of waste identified in Appendix 1 and to be environmentally insignificant, the addition could be approved without additional assessment and with details publicly available. However, where the addition is deemed to be environmentally significant, the EPA would expect a request for an amendment to the environmental conditions of approval for this proposal under Section 46 of the Environmental Protection Act.

## **Recommendation 2**

**The Environmental Protection Authority recognises that the proponent may request other intractable wastes (not identified at this time) for disposal. Accordingly, the Environmental Protection Authority recommends that if disposal of a new waste is proposed, the proponent should refer such a proposal to the EPA for assessment. Where the EPA finds the addition to belong to one of the classes of waste identified in Appendix 1 and to be environmentally insignificant, the addition could be approved without additional assessment and with details publicly available. However, where the addition is deemed to be environmentally significant, the EPA would expect a request for an amendment to the environmental conditions of approval for this proposal under Section 46 of the Environmental Protection Act.**

### **4.4.3 Mode of transport and use of emergency vehicles accompanying trucks to the site**

Several submissions made during the assessment of this and previous proposals for Mt Walton referred to intractable waste as being highly toxic. The sentiments were expressed in the context of the necessity for using rail transport or ensuring emergency vehicles accompanied trucks.

The transport issue has been assessed previously in the context of PCBs, low level radioactive and mineral sands waste disposal at Mt Walton. The proponent proposes to meet the requirements of the Explosives and Dangerous Goods Division of the Department of Minerals and Energy which regulates the transport of dangerous goods in Western Australia. Additionally the proponent intends to comply with its Environmental Conditions already placed upon it for the transport of the above wastes to Mt Walton.

The EPA, however, believes that further clarification of the word **intractable** would be useful in the context of requirements for emergency transport vehicles. In Western Australia the word intractable simply means that there is no accepted method of destruction for a particular category of waste in Australia. It does not imply a degrees of toxicity. The words intractable and toxic should not be used interchangeably. Some intractable wastes pose only a low threat to humans and the environment because of their properties, eg low level radioactive waste from hospitals, road signs and contaminated clothing. Other wastes such as PCBs in transformers are no longer considered intractable, although toxic, because they can now be destroyed in Australia. In contrast, PCBs in capacitors are still considered intractable, but are no more toxic than PCBs in transformers, because they cannot be destroyed in Australia.

Some highly toxic intractable wastes may pose a major threat if spilled while others may not. For instance, if the waste is in the liquid form and in very large volume containers, spillage could be hard to contain. On the other hand, small volumes of waste contained in steel drums within steel crates and transported in steel containers may pose little threat if an accident were to occur.

For highly toxic intractable solid waste, a spill may cause a major problem if it were very dusty or very soluble (in a catchment area on a wet day). Alternatively, non soluble large solid items such as transformers could be easily gathered up and pose little or no risk.

In essence, the mode of transport required and the necessity for emergency vehicles (and the degree to which the emergency vehicle is equipped) is highly dependent upon the nature and form of the waste.

The EPA, when previously assessing the transport of PCBs to Mt Walton recommended an emergency vehicle to accompany the transport vehicle. The EPA, however consider the transport of PCBs lies on the more dangerous end of the spectrum and recommended accordingly. On the other hand, when EPA assessed the Rhone Poulenc proposal to extract rare earths from mineral sands at Pinjarra, it recommended rail transport for waste disposal to Mt Walton largely because of the volume. The EPA envisages much of the wastes nominated in Appendix 1 may not require an emergency vehicle to accompany the truck. However, the final decision can only be made on a case by case basis and should be done through publicly available correspondence between the EPA , the Health Department and the Department of Minerals and Energy. However, where large volumes of intractable waste are involved the EPA would assess the proposal in terms of the advantages of rail transport against road transport.

**The Environmental Protection Authority considers that the mode of transport (road versus rail transport) of waste to Mt Walton can only be considered on a case by case basis. Whilst the Environmental Protection Authority considers road transport is acceptable for the wastes nominated in Appendix 1, it believes that occasions may arise when large volumes of waste from unforeseen mining or industrial processes may require transport to Mt Walton. Accordingly, the Environmental Protection Authority considers that rail transport should be considered in the cases of transport of large volumes of waste.**

#### 4.4.4 Alternative technologies

The EPA is cognisant of the recommendations of the Independent Panel on Intractable Wastes, chaired by Dr B Selinger in 1992. The EPA supports the principle that alternative technologies for intractable waste disposal should be encouraged and that environmental costs of contemporary technology should be considered when comparisons are made with alternatives. Accordingly, the EPA does not consider disposal of intractable waste using secure landfill, including Mt Walton, as a panacea. EPA considers such disposal, albeit environmentally acceptable, as nothing more than secure storage.

The EPA believes that the issue of intractable waste disposal will become more critical with time and final destruction techniques should be encouraged. However, it is not the role of the EPA to advocate specific alternative destruction methods for disposal but rather to assess each new alternative technology on its merits in the context of a proposal.

In addition to the above, the EPA recognises that for all the promises of alternate technologies being close at hand, few have been proved satisfactory. For those that are environmentally and socially acceptable, they are limited with respect to the type and volume of waste they can handle. Consequently, they may only offer a disposal solution to a small proportion of intractable waste. Accordingly, the EPA regards highly secure landfill, such as Mt Walton, as being a viable waste disposal option in concert with alternative destruction technologies. Nevertheless, where acceptable destruction technology exists, its use should be encouraged and the development of these technologies closely monitored and assessed to ascertain whether they can be employed to destroy wastes which may otherwise be disposed of at Mt Walton.

### Recommendation 3

**The Environmental Protection Authority recognises that alternative destruction technologies are being developed at present. Accordingly, the Environmental Protection Authority recommends that if the Minister for the Environment issues an approval for this proposal, the approval should be reviewed after five years in the light of new methods of disposal or destruction becoming viable.**

The EPA is frequently requested by individuals and industry to help with the disposal of intractable waste. It is the statutory responsibility of the Health Department to ensure that waste management is properly undertaken in Western Australia. The EPA does not consider that the

storage of intractable waste at numerous sites throughout the state is acceptable as the packaging and storage facilities cannot be properly monitored. The EPA believes that the Health Department should prepare a management plan which would indicate how it intends to be proactive in dealing with the backlog of intractable waste throughout the State. Such a plan would offer generators and present holders of waste confidence that the State can promptly and efficiently cope with the collection of old and generation of new intractable waste and dispose of them properly.

**The Environmental Protection Authority recognises that there is existing intractable waste in storage in Western Australia. The Environmental Protection Authority considers the Health Department of Western Australia, which has statutory responsibility for waste management in the State, should prepare a strategy indicating how it intends to manage this backlog of intractable waste and offer new generators methods of disposing of intractable waste.**

The EPA believes that since the issue of disposal of intractable waste is with us forever, it is timely for the Health Department to develop a thorough audit and recording system so that in years to come, managers of intractable waste will be left in no doubt as to the full history of all waste disposed of at Mt Walton.

#### **Recommendation 4**

**The Environmental Protection Authority recognises that, as the disposal of intractable waste remains with us forever, a proper register of waste stored at Mt Walton and waste disposal location maps be kept. Accordingly, the Environmental Protection Authority recommends that the Health Department should keep records and disposal locations maps of all waste disposed of at Mt Walton. The Environmental Protection Authority recommends that, within six months of any approval for this proposal, the proponent should submit, and have approved by the Environmental Protection Authority such a recording system.**

## **5. Conclusion**

Based on the information supplied in the CER and additional information supplied by the proponent during the assessment, the EPA has concluded that the proposal for the disposal of intractable wastes (Appendix 1) at Mt Walton by shaft and trench burial is environmentally acceptable.

In reaching its conclusion, the EPA recognised the number of approvals already granted to the Health Department for this waste disposal facility and identified no new issue relating to the integrity and security of the site which had not been assessed in previous proposals or in EMPs. The EPA also recognised the satisfactory manner in which the proponent has managed the facility to date and kept the EPA informed of its activities.

The EPA believes that the future success of the facility is directly related to ongoing management. The proponent has made a comprehensive list of commitments covering the environmental issues raised during previous assessments and reiterated the relevant commitments in this proposal, including those relating to site management.

Accordingly, the EPA concludes that the proposal is environmentally acceptable and could proceed subject to the information given in the CER, in answers to questions raised during the assessment, commitments made by the proponent and the recommendations in this report.

## **6. Recommended environmental conditions**

Based on its assessment of this proposal and recommendations in this report, the Environmental Protection Authority considers that the following Recommended Environmental Conditions are appropriate.

### **1. Proponents Commitments**

The proponent has made a number of environmental management commitments in order to protect the environment.

- 1-1 In implementing the proposal, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made in the Consultative Environmental Review and included in the Environmental Protection Authority's Bulletin 726. (see Attachment 1 following these recommended environmental conditions.)

### **2. Implementation**

Changes to the proposal which are not substantial may be carried out with the approval of the Minister for the Environment.

- 2-1 Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal. Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that the Minister for the Environment determines on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

### **3. Proponent**

These conditions legally apply to the nominated proponents.

- 3-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

### **4. Additions to the approved list of intractable waste**

The proponent has approval for the disposal of intractable waste specifically identified in as Appendix 1 in the EPA Bulletin 726 (as amended from time to time).

- 4-1 Any additions to Appendix 1 will be considered by the Minister for the Environment under the provisions of Recommended Environmental Condition 2 above.
- 4-2 Any additions to Appendix 1 that the Minister for the Environment (on advice of the Environmental Protection Authority) considers should be more fully and publicly assessed, will be required to undertake an assessment under the provisions of Section 46 of the Environmental Protection Act.
- 4-3 Any additions to Appendix 1 that the Minister for the Environment (on advice of the Environmental Protection Authority) considers to be environmentally significant should be referred to the EPA under the provisions of Section 38 of the Environmental Protection Act.
- 4-4 Any deletions of intractable wastes from Appendix 1 shall be at the discretion of the Minister for the Environment on advice from the EPA and proponent.

### **5. Review of environmental conditions**

- 5-1 The approval for disposal of intractable wastes identified in Appendix 1 of EPA Bulletin 726 (as amended from time to time) is only valid for a period of five years from the date

this Statement is published. Continuation of this approval shall only continue after consideration of alternative destruction technologies in the form of a written report to the Minister for the Environment.

**6. Register of intractable waste within the Mount Walton site**

6-1 Within six months of any approval of this proposal, the proponent shall develop a register that shows the source, type, quantity and location of any intractable waste disposed of at the Mount Walton site.

**7. Time Limit on Approval**

The environmental approval for this proposal is limited.

7-1 If the proponent has not substantially commenced the project within five years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced. Any application to extend the period of five years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority.)

**Procedure**

1. The Environmental Protection Authority is responsible for verifying compliance with the conditions contained in this statement, with the exception of conditions stating that the proponent shall meet the requirements of either the Minister for the Environment or any other government agency.

2. If the Environmental Protection Authority, other government agency or proponent is in dispute concerning compliance with the conditions contained in this statement, that dispute will be determined by the Minister for the Environment.

## **Appendix 1**

**Revised list of wastes which the proponent envisages  
would be disposed of at Mt Walton**



**POTENTIAL WASTES FOR DISPOSAL AT THE IWDF  
MT WALTON EAST**

- Aluminium
- Cadmium
- Chromium
- Cobalt
- Copper
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Nickel
- Strontium
- Vanadium
- Zinc

(and their compounds).

**Materials contaminated with:**

- Aldrin
- Chlordane
- DDT
- Dieldrin
- Heptachlor
- Other organochlorines
- Arsenical pesticides

**Household chemicals**

- excluding highly acidic, alkaline, volatile, flammable or otherwise reactive chemicals
- including insecticides fungicides, herbicides and other pesticides.

**Other materials which may be disposed of at the IWDF include:**

- Polycyclic aromatic hydrocarbons
- Phenols and their derivatives
- Coal tars
- Flyash
- Asbestos
- Materials contaminated with polychlorinated biphenyls
- Radionuclides (low level radioactive wastes).
- Arsenical sheep dip

## **Appendix 2**

**List of organisations and individuals  
who made submissions**

Department of Minerals and Energy

Shire of Coolgardie

Conservation Council of WA

Coalition for Wanneroo's Environment (Tauss R)

Blaasch, E

Eggleston

Heale C

Peebles S

Smith P S Dr

## **Appendix 3**

**Answers to questions raised during the  
public review period**

**HEALTH DEPARTMENT OF WESTERN AUSTRALIA**

**INTRACTABLE WASTE DISPOSAL FACILITY  
CONSULTATIVE ENVIRONMENTAL REVIEW**

**RESPONSES TO QUESTIONS RAISED IN  
PUBLIC SUBMISSIONS**

1. Does the proponent intend to develop a management plan to ensure that all aspects of the proposal are carried out in a responsible manner?

Yes, a management plan will be produced. It should be noted however, that a number of management plans have already been produced for the IWDF at Mt Walton East. These comprehensively describe the manner in which waste will be transported, handled and disposed of. The management plans have been approved by the Environmental Protection Authority (EPA) with advice from other appropriate authorities and the proposal in the present CER is consistent in every respect with the procedures described in the plans.

As stated in the CER the following have been approved by the Minister for the Environment for the IWDF at its current location.

- High temperature incineration of PCB wastes and organochlorine pesticides.
- Trench burial of large volumes of low level radioactive waste from the processing of mineral sands.
- Storage in sheds of PCB wastes and organochlorine pesticides.
- Shaft burial of low level radioactive waste from the temporary store at the Radiation Health Branch of the Health Department of Western Australia.

The EPA Bulletin 353 of September 1988 required EMP's covering major aspects of the proposal be prepared and submitted for further assessment of the project. This was subsequently carried out with the production of three EMPs:

- Proposed Disposal of Radioactive Waste at Remote Site, Environmental Management Program, Health Department of Western Australia, September 1989.
- Integrated Waste Storage Facility Access Road to Mt Walton East, Environmental Management Program, Alan Tingay & Associates and Halpern Glick Maunsell Pty Ltd, March 1991.
- Transport and Storage of Wastes at the Integrated Waste Storage Facility East of Mt Walton, Environmental Management Program, Alan Tingay & Associates, April 1991.

An evaluation of these EMPs was made by the EPA in Bulletin 571 produced in August 1991.

2. Will the proponent involve the State and Federal Governments and the public during the management of the facility? Will an EMP be prepared for this proposal, and if so will it receive public review? Will the annual monitoring reports be available for the public and the Shire of Coolgardie to comment on?

The proponent is committed to complying with all State Government requirements in relation to the management of the IWDF. The Minister for Environment has imposed conditions regarding the management of the facility and these include regular compliance reports to be submitted to the EPA. These reports will be public documents and as such the public, and particularly the Shire of Coolgardie, will have access to details of management of the site.

The Federal Government has no involvement with the management of the site.

These EMPs have been prepared to cover all aspects of waste disposal at the site, (see answer to Question 1).

Annual monitoring reports will be lodged with the appropriate authorities and the Shire of Coolgardie. As such, these reports will be available to the public.

3. Is the proponent aware that the proposed storage of intractable waste at Mt Walton is an outdated practice? Why has the proponent not considered alternate technology to destroy the wastes?

Storage of waste is not an outdated practice in relation to wastes of a truly intractable nature such as arsenic contaminated materials and low level radioactive items.

Alternative technologies are continually under review by the Health Department to assess their suitability for destroying various other wastes. It should be noted that in the CER it is stated that, "it is unlikely that either high temperature incineration or long term storage of PCBs would occur at the IWDF because methods of chemical disposal are now becoming available which are likely to make these materials much more tractable than they have been in the past". Nevertheless, the Health Department considers that when small amounts of chemical are included within a device or piece of equipment such as a capacitor or a large device such as a transformer that has been cleaned with solvents, then burial may be the most suitable disposal option for that equipment. Such equipment could not be satisfactorily handled by alternative technologies at present, due mainly to their size.

The use of alternatives such as BCD technology or hydrogenation to destroy wastes is continually under review, but not all wastes can be destroyed by these means or at reasonable cost.

4. Will the proponent be more specific with respect to the type of wastes which will be disposed of at Mt Walton? What is the half-life of the radioactive waste being buried at Mt Walton at present? Will the proponent be disposing of liquid wastes or concentrated wastes such as organochlorines, polycyclic aromatic hydrocarbons or soil contaminated with PCBs or other organic contaminants? Has the proponent considered using BCD technology or hydrogenation on-site to destroy wastes?

The Proponent cannot be more specific with respect to the types of wastes which will be disposed of at Mt Walton at this time other than to highlight the wastes that have already been specified in the CER. The only specific proposal that currently exists, as stated in the CER, is the disposal by shaft burial of sheep dip.

A variety of low level radioactive wastes have been disposed of at Mt Walton by burial. The half lives of these materials vary. However, the longest lived radionuclide currently buried at Mt Walton is Am<sup>241</sup> which has a half life of 432 years.

5. Will wastes from interstate be disposed of at Mt Walton? What is the life of the proposal? If waste is stored at Mt Walton as opposed to being disposed of, how long will the storage period be?

A current condition imposed by the Minister for Environment prohibits the placement at the IWDF of wastes generated and held interstate.

The IWDF site is vested in the Minister for Health in perpetuity and as such the site and proposals for disposal at the site have no set time limit.

So far, all wastes have been disposed of in a way that envisages storage forever, and are engineered accordingly. Should interim storage be envisaged, this would be designed to ensure safe storage for as long as necessary.

6. Will the proponent adhere to International Standards or Guidelines for the management of the site, transport, storage and disposal of waste, and leachate and emissions? Has the proponent approval to transport waste by road to Mt Walton? If so what type of containers will it use? Have such containers been properly tested for this use? For road transport, will a properly equipped emergency vehicle accompany the trucks carrying the waste? Will the transport of waste be restricted to day light hours?

Yes, the proponent intends to adhere to all Australian Standards or Guidelines and all conditions imposed on it by the EPA through the Minister for the Environment for all aspects of waste disposal at the IWDF.

The proponent received approval for the recent transport by road of packaged low level radioactive material to the IWDF and, through the present CER, is seeking approval for transporting by road the types of wastes specified in the CER.



The containment of waste transported by road to the IWDF will vary depending on the type of waste involved and will comply with all relevant codes for the transport of such waste. The question of emergency vehicles and transport being restricted to daylight hours is covered under transport regulations applying to particular wastes and will be undertaken where required.

7. Has the proponent approval for disposal of mineral sands waste and low level radioactive waste by burial at Mt Walton? Has the proponent approval for disposal of PCB waste by incineration at Mt Walton? If such approvals exist can the proponent present them?

The Proponent has approval for disposal of mineral sands wastes and low level radioactive wastes by burial at Mt Walton. The Proponent also has approval for disposal of PCB wastes by incineration at Mt Walton. These approvals of the Minister for Environment are based on recommendations of the Environmental Protection Authority as outlined in the CER (see EPA Bulletin 353 of September 1988 and EPA Bulletin 571, of August 1991).

8. Has the proponent ever had the potential impacts of the Mt Walton facility assessed with regards to an environmental threat to the Avon catchment area?

The potential impacts of the Mt Walton facility in relation to catchment areas have been investigated exhaustively with much of the initial work carried out by the Geological Survey of Western Australia. The site is positioned in a remote arid area on an undulating sandplain that lies between two adjacent valley floors. These valley floors are choked remnants of a drainage system which was active under a high rainfall regime in the past. The valleys dip to the regional drainage sumps of Lake Barlee and Lake Ballard.

Groundwater is scarce in the region and wherever it is encountered it is invariably salty and unfit for human consumption. Groundwater does not occur at the Mt Walton site. This lack of groundwater and the presence of tight kaolinitic clays that are relatively impermeable, combined with the fact that liquid wastes will be solidified before disposal, means that the likelihood of leachate migrating off-site is minimal. As such, any impact of the Mt Walton facility on any catchment is extremely unlikely.

9. Can the proponent explain why buried waste will not slowly surface due to difference in density or surrounding soil erosion? What depth of overburden will exist over the waste?

Buried waste will not slowly surface due to density differences because generally the waste will be more dense than the surrounding material. Furthermore, for density differences to have an effect other factors such as friction need to be overcome before the waste could rise. This is extremely unlikely in a system which lacks a fluid media.

Materials such as low level radioactive waste will be buried with a minimum of 5m overburden. Other wastes will be buried at depths varying from 0m to 5m

## **Appendix 4**

**List of commitments given by the proponent**

## COMMITMENTS

The approvals for the various proposals relating to waste disposal at the IWDF in the past have led to the production of a list of commitments which the Health Department will adhere to in matters relating to the IWDF. These commitments have subsequently become Ministerial Conditions. A list of the Ministerial Conditions relating to the operation of the IWDF for certain wastes is included in Appendix 1. For the immediate proposal to dispose of arsenic bearing sheep dip the Ministerial Conditions will be adhered to wherever they are relevant to the disposal operation.

The Ministerial Conditions relevant to disposal of arsenic bearing sheep dip are listed below:

1.     General - Wastes  
      Only properly trained and fully qualified operators will be employed for storage, handling and transport of wastes.
2.     General - Compliance Auditing  
      Periodic 'Progress and Compliance Reports' will be prepared to help verify the environmental performance of the project, in consultation with the EPA.

In addition, the Health Department of Western Australia undertakes to:

3.     Package, transport and dispose of wastes in accordance with the procedures specified in this CER.
4.     Inform the EPA when it is planning to dispose of waste at the IWDF.
5.     Inform the EPA of the quantity and type of waste proposed for disposal at the site, and
6.     Conduct monitoring programs where necessary to ensure the safe operation of the site.