

**Disposal by Shaft Entombment or Trench Burial of
a Range of Intractable Wastes at the Intractable
Waste Disposal Facility, Mt Walton East, Western
Australia. Extension of Time Limit of Approval via
Section 46**

**Waste Management (WA)
Department of Environmental Protection**

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

**Environmental Protection Authority
Perth, Western Australia
Bulletin No. 954
October 1999**

Summary and recommendations

Waste Management (WA), a body corporate of the Department of Environmental Protection (DEP) is seeking to obtain approval from the Minister for the Environment under Section 46 of the *Environmental Protection Act 1986* for an extension of the time limit on an environmental approval for the disposal of intractable waste by shaft entombment or trench burial at the Intractable Waste Disposal Facility, Mt Walton East, Western Australia as provided for in the existing conditions of approval (Ministerial Statement No 353) (Appendix 3). Environmental Condition 5 contained in Ministerial Statement No 353 sets out that any request for an extension of time should include an examination of alternative destruction technologies for intractable wastes.

Section 46 of the *Environmental Protection Act 1986* requires the Environmental Protection Authority (EPA) to report to the Minister for the Environment on whether or not the proposed changes to conditions or procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

Relevant environmental factors

It is the EPA's opinion that the following are the environmental factors relevant to the proposal, which require detailed evaluation in the report:

- (a) A review of alternative destruction and management technologies currently available in Australia.
- (b) A review of potential alternative destruction and management technologies available in Australia.

Conclusion

The EPA notes Waste Management (WA)'s comprehensive review of alternative destruction technologies currently available in Australia to treat those wastes identified on the list of potential wastes for disposal at the Intractable Waste Disposal Facility, Mt Walton East. The review is "Application to extend the period of approval of disposal by shaft entombment or trench burial of a range of intractable wastes at the intractable waste disposal facility, Mt Walton East, Western Australia, July 1999."

The EPA has considered the proposal by Waste Management (WA) to extend the time limit of environmental approval for the disposal of intractable wastes (as identified in Ministerial Statement 353) by shaft entombment or trench burial at the Intractable Waste Disposal Facility, Mt Walton East, Western Australia and concluded that the extension should be allowed as there are wastes for which there are no practicably available alternative destruction technologies in Australia.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that this report is pursuant to Section 46 of the *Environmental Protection Act 1986* and thus is limited to consideration of proposed changes to the original conditions.
2. The Minister notes that the proposed change is for an extension of the time limit on an environmental approval for the disposal of intractable waste by shaft entombment or trench burial at the Intractable Waste Disposal Facility, Mt Walton East, Western Australia as

provided for in the existing conditions of approval (Ministerial Statement No 353) (Appendix 3). However, the relevant Environmental Condition required that there be an examination of alternative destruction technologies for intractable wastes if an extension of time was requested.

3. The EPA recommends that the Minister considers the report on the relevant environmental factors as set out in Section 3.
4. That the Minister notes that the EPA has concluded that:
 - (a) that the report by the proponent on alternative destruction technologies for intractable wastes fulfils the requirement of Environmental Condition 5 in Ministerial Statement 353;
 - (b) that the extension of time request be given effect by removing the relevant Environmental Condition (No5) and replacing it by a new condition which has no time limit but has a requirement to consider alternative technologies practically available in Australia at the time each new consignment of intractable waste to Mt Walton Integrated Waste Disposal Facility is proposed;
 - (c) the consideration required for each consignment would be undertaken through the preparation of an Environmental Management Plan; and
 - (d) that to give effect to the conclusions (a) to (c) two new Environmental Conditions are required, as set out in appendix 4.
5. The Minister imposes the amended conditions and procedures recommended in Appendix 4 of this report.

Conditions

The EPA recommends that the following conditions, which are set out in detail in Appendix 4, be imposed if the proposal by Waste Management (WA) is approved for implementation:

The existing Environmental Conditions applied to the project (Ministerial Statement 353 published 28 April 1994), be subject to modifications necessary to:

- require the proponent to only dispose of intractable wastes identified in Appendix 1, Environmental Protection Authority Bulletin 726, "Potential Wastes for Disposal at the Intractable Waste Disposal Facility, Mt Walton East," as revised from time to time by the Minister for the Environment on the advice of the Environmental Protection Authority. A copy of the revised Appendix 1 is attached (Condition 5);
- include an additional condition for an Environmental Management Plan for each consignment of waste proposed for disposal to include a review of alternative destruction technologies practicably available in Australia at that time (Condition 7); and
- update Condition 2 to currently applied wording (Condition 2).

Contents

	Page
Summary and recommendations	i
1. Introduction and Background	1
2. Proposal	1
3. Environmental factors	3
3.1 Review of alternative destruction and management technologies.....	3
3.2 Review of potential destruction and management technologies.....	5
3.3 EPA's assessment of alternative and potential destruction and management technologies.....	6
4. Conclusions and recommendations	6

Tables

1. Summary of the destruction technologies available in Australia	3
2. Summary of the management technologies available in Australia	3

Figures

1. Regional Location IWDF.....	2
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Appendices

1. List of submitters
2. References
3. Statements of Conditions and Approvals
4. Recommended Ministerial Conditions
5. Summary of submissions and proponent's comments

1. Introduction and Background

Waste Management (WA), a body corporate of the Department of Environmental Protection (DEP) is seeking to obtain approval from the Minister for the Environment under Section 46 of the *Environmental Protection Act 1986* for an extension of the time limit of environmental approval for the disposal of intractable waste by shaft entombment or trench burial at the Intractable Waste Disposal Facility, Mt Walton East, Western Australia (IWDF) as provided for in the Ministerial Statement No 353. Condition 5-1 of Ministerial Statement 353 requires that Waste Management (WA) application should include a review of alternative destruction technologies (Appendix 3). Accordingly, this report addresses this matter of alternative technologies as a part of the EPA consideration of the request for an extension of the time limit of approval.

The DEP, through its Evaluation Division, traditionally provides a service to the EPA in undertaking the assessment process. However as the Proponent, Waste Management (WA) is an entity that forms part of the DEP, for this assessment it has been necessary to create a different arrangement to ensure that there was no conflict of interest between the Proponent and the services required by the EPA. Therefore the assessment process has been undertaken by an independent consultant under the direction of the Chairman of the EPA and not by the Evaluation Division of the DEP. The Evaluation Division has provided administrative support only.

During the 1980s, action was taken on the need for a disposal location for intractable wastes in Western Australia. The proposal to establish the IWDF developed over several years during which time the nature and proposed location of the facility changed several times.

The Consultative Environmental Review for the Intractable Waste Disposal Facility, Mt Walton East, Western Australia was formally assessed by the Environmental Protection Authority in late 1993. The Minister for the Environment gave environmental approval for the project, subject to conditions, on 28 April 1994 (Appendix 3). Since 1992 the IWDF has been used for ten intractable waste disposal operations.

Further details of the proposal are presented in Section 3 of this Report. Section 4 discusses the review of current destruction and management technologies currently available in Australia and potential destruction and management technologies for the disposal of intractable wastes. Section 5 presents the EPA's conclusion and recommendations.

A list of organisations that made submissions is included in Appendix 1. References are listed in Appendix 2, and Appendix 5 contains a summary of the public submissions and the proponent's response. Relevant previous Ministerial Statements are given in Appendix 3.

2. Proposal

The IWDF is located approximately 125km north west of Kalgoorlie-Boulder, 100km north west of Coolgardie and 75km north east of Koolyanobbing in the Shire of Coolgardie (Figure 1). It was established in 1988 as a secure disposal option for the State's low-level radioactive and intractable waste. It is used only when it has been demonstrated to the Environmental Protection Authority (EPA) that there is no practicable alternative destruction or treatment technology for the waste in Australia. The IWDF is only to be used to dispose of waste listed in Statement 353, as amended, (Appendix 3) and generated in Western Australia. Since 1992 there have been ten disposal operations conducted at the IWDF.

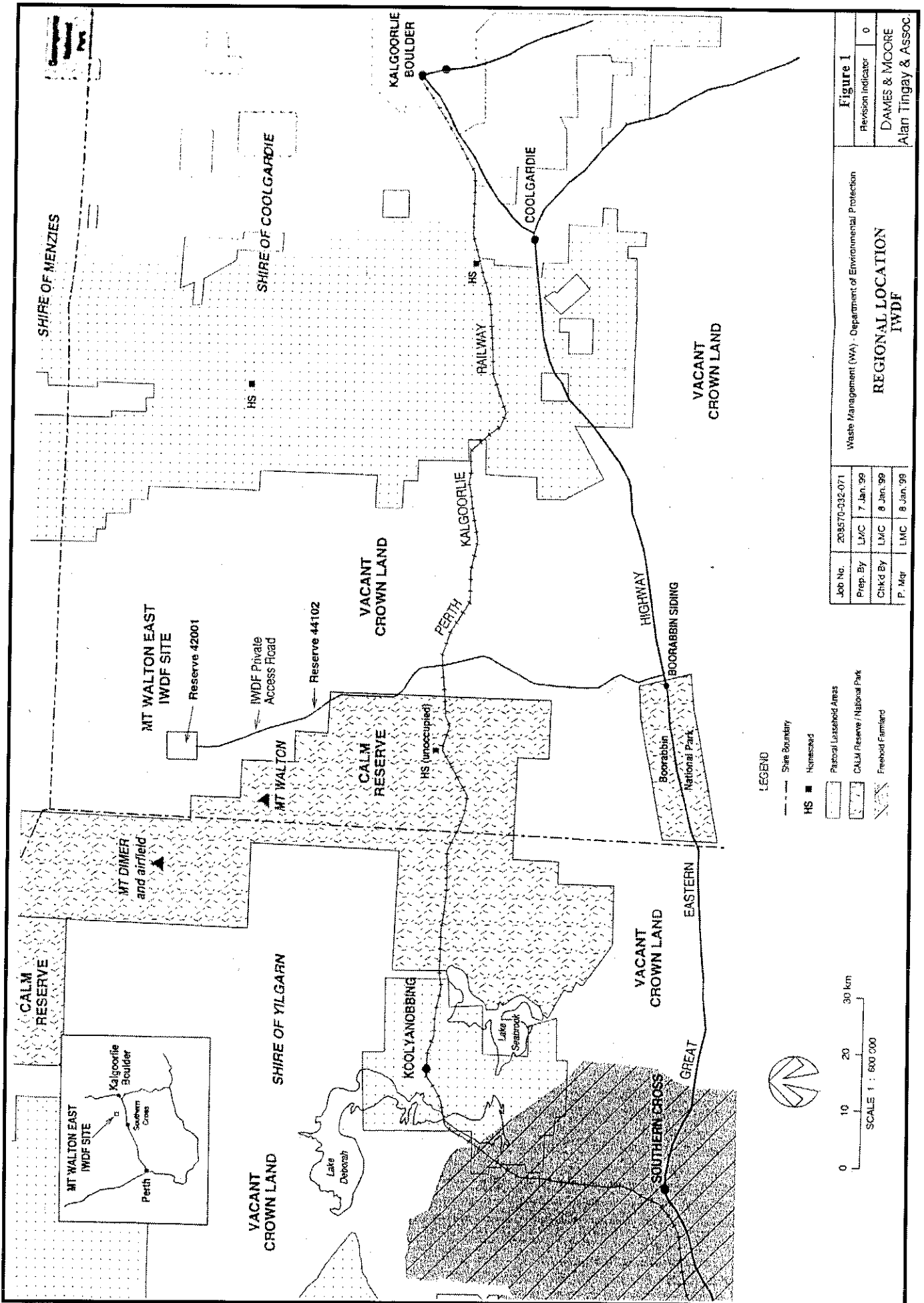


Figure 1. Regional Location IWDF. (Courtesy of Dames & Moore)

The IWDF operations are summarised:

In 1992 numerous small radioactive sources including a variety of teaching, research, hospital, and industrial wastes held by the Radiation Health Section of the Health Department of WA were entombed by shaft and trench burial at the IWDF. In 1994 radium contaminated equipment from Wesfarmers CSBP, radioactive waste and pesticides from the Health Department WA and arsenic waste from Agriculture WA and pesticides were entombed by shaft and trench burial at the IWDF.

In 1996 soil contaminated with organo-chlorine pesticide (DDT) and toluene from Wongan Hills Agricultural Research Station was entombed by trench burial at the IWDF.

In 1997 and 1998 arsenic trioxide from Kanowana Belle Gold Mines and Wesfarmers CSBP were entombed by trench burial at the IWDF.

In 1998 PCB contaminated soil from Stephenson & Ward was disposed by trench burial at the IWDF.

Further details of the IWDF can be obtained from its CER and the relevant EPA Bulletins. Details of operations can be found in close-out reports for operations and in annual performance and compliance reports.

3. Environmental factors

The EPA considers the following relevant environmental factors:

- Review of alternative destruction and management technologies.
- Review of potential destruction and management technologies.

These two factors are considered as they are a requirement under Environmental Condition 5 of Ministerial Statement 353 as part of an application for approval for an extension of time limit.

3.1 Review of alternative destruction and management technologies

Description

A comprehensive review was made of destruction and management technologies commercially available in Australia for the list of intractable wastes approved by the Minister for the Environment (Appendix 3). The review demonstrated that:

- Of the eleven categories of waste listed, six can not be treated by destruction technologies while the remainder contain only some wastes or waste forms that can be treated.
- In each waste category there are types or forms of waste for which no commercially viable non-destructive management technology is currently available in Western Australia.

Table 1 - Summary of the destruction technologies available in Australia

Intractable waste type	Destruction technologies				
	Eco Logic	BSD	EASE	Plascom	Bio remediation
Heavy metals & compounds	NA	NA	NA	NA	NA
Arsenic bearing wastes	NA	NA	NA	NA	NA
Organochlorine pesticides (OCPs)	WA	Aust	NA	Q'd	NA
Poly aromatic hydrocarbons PAHs	NA	Vic, Q'd	NSW	Q'd	WA
Phenol & derivatives	WA	Q'd	NA	Q'd	NA
Coal tars	NA	Vic, Q'd	NSW	Q'd	WA
Flyash	NA	NA	NA	NA	NA
Asbestos	NA	NA	NA	NA	NA
PCBs	WA	Vic, Q'd	NA	Q'd	NA
Radionuclides	NA	NA	NA	NA	NA
Acrylamide material	NA	NA	NA	NA	NA

Notes to Table 1

- Eco Logic – Gas phase chemical reduction
- BSD – Base catalysed dechlorination
- EASE – Enhanced air stripping equipment
- PLACOM – plasma arc process
- NA – not applied
- Aust - Australia
- WA – Western Australia
- Vic – Victoria
- NSW – New South Wales
- Q'd – Queensland

Table 2 - Summary of the management technologies available in Australia

Intractable waste type	Management technologies	
	Fixation & stabilisation	ISV
Heavy metals & compounds	WA	Australia (mobile)
Arsenic bearing wastes	WA	Australia (mobile)
Organochlorine pesticides (OCPs)	NA	Australia (mobile)
Poly aromatic hydrocarbons PAHs	NA	Australia (mobile)
Phenol & derivatives	NA	Australia (mobile)
Coal tars	NA	Australia (mobile)
Flyash	WA (specialised)	Australia (mobile)
Asbestos	NA	NA
PCBs	NA	Australia (mobile)
Radionuclides	NA	Australia (mobile)
Acrylamide material	NA	NA

Notes to Table 2

- ISV – In situ vitrification
- WA – Western Australia
- NA – Not applied

Submissions

The following are a summary of issues raised in the public submissions:

- There is a need for technology and waste reviews prior to each disposal at the IWDF.
- The meaning of “suitable” was not clearly defined.
- Support ongoing reviews of destruction and management technologies.
- The IWDF is an asset to the State.
- Support application for extended period.

Relevant issues raised in the public submissions have been addressed by the changes to Conditions 2 and 5 of Ministerial Statement 353 and the inclusion of a new Condition

3.2 Review of potential destruction and management technologies

Description

It is recognised that many technologies are known and exist worldwide for treating some of the wastes in the various categories approved for disposal at the IWDF and are considered as potential technologies for the purpose of this review. The technologies reviewed are:

- Molten media process (molten slag)
- Xtaltite® process
- Plasma arc centrifugal treatment process (PACT)
- High temperature incineration
- Sodium based technology
- Catalytic treatment
- Dolcrete encapsulation technology
- Synroc

The review reports that there are rapid changes and developments occurring in technologies for the destruction of intractable wastes and the review considered those that were available at that time.

Submissions

The public submissions did not raise specific comments on potential destruction and management technologies. There was independent research being undertaken for the disposal of intractable wastes previously disposed of the IWDF.

Relevant issues raised in the public submissions have been addressed by the changes to Conditions 2 and 5 of Ministerial Statement 353 and the inclusion of a new Condition 7.

3.3 EPA's assessment of alternative and potential destruction and management technologies

The EPA notes the Proponent's comprehensive review of alternative destruction and management technologies currently available in Australia and potential destruction and management technologies to treat those wastes identified on the list of potential wastes for disposal at the IWDF. The EPA on the advice of its independent consultant was of the view that the Proponent's review represents the current Australian position.

The EPA also notes the review "Application to extend the period of approval of disposal by shaft entombment or trench burial of a range of intractable wastes at the intractable waste disposal facility, Mt Walton East, Western Australia, July 1999" was not definitive in its description of all the potential alternatives to dispose of intractable waste at the IWDF. However, it is sufficiently detailed to demonstrate that while alternatives to disposal at the IWDF are technically possible for all categories of waste on the list (Appendix 3) it is currently impossible to apply these technologies in all cases in Western Australia. There are several reasons for this:

- commercially some of these technologies may only be available overseas;
- wastes that contain a mixture of contaminants may be impossible to treat by the technologies that are commercially available in Australia;
- the chemical or physical form of some wastes makes them difficult to treat in a commercially viable manner using the technologies that are available in Australia; and
- the quantities of some wastes and/or their geographical distribution make them difficult to treat in a commercially viable manner using the technologies that are available in Australia.

Consequently, there is an ongoing need for the IWDF to provide a safe disposal option for these wastes.

Relevant issues raised in the public submissions have been addressed by the changes to Conditions 2 and 5 of Ministerial Statement 353 and the inclusion of a new Condition 7. New Condition 7 now requires the review of alternative destruction technologies for each consignment of waste proposed for disposal at the time of the proposal and thereby ensures that recently developed technologies are taken into account. This is considered to be more effective than a five yearly review.

4. Conclusion and recommendations

Section 46 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environmental Protection Act 1986 on whether or not the proposed changes to conditions or procedures should be allowed. In addition, the EPA may make recommendations as it sees fit.

The EPA notes Waste Management (WA)'s comprehensive review of alternative destruction technologies currently available in Australia to treat those wastes identified on the list of potential wastes for disposal at the Intractable Waste Disposal Facility, Mt Walton East. The review is "Application to extend the period of approval of disposal by shaft entombment or trench burial of a range of intractable wastes at the intractable waste disposal facility, Mt Walton East, Western Australia, July 1999."

The EPA has considered the proposal by Waste Management (WA) to extend the time limit of environmental approval for the disposal of intractable wastes by shaft entombment or trench burial at the Intractable Waste Disposal Facility, Mt Walton East, Western Australia and concluded that the extension should be allowed as there are wastes for which there are no practicably available alternative destruction technologies in Australia.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that this report is pursuant to Section 46 of *the Environmental Protection Act 1986* and thus is limited to consideration of proposed changes to the original conditions.
2. The Minister notes that the proposed change is for an extension of the time limit on an environmental approval for the disposal of intractable waste by shaft entombment or trench burial at the Intractable Waste Disposal Facility, Mt Walton East, Western Australia as provided for in the existing conditions of approval (Ministerial Statement No 353) (Appendix 3). However, the relevant Environmental Condition required that there be an examination of alternative destruction technologies for intractable wastes if an extension of time was requested.
3. The EPA recommends that the Minister considers the report on the relevant environmental factors as set out in Section 3.
4. That the Minister notes that the EPA has concluded that:
 - (a) that the report by the proponent on alternative destruction technologies for intractable wastes fulfils the requirement of Environmental Condition 5 in Ministerial Statement 353;
 - (b) that the extension of time request be given effect by removing the relevant Environmental Condition (No5) and replacing it by a new condition which has no time limit but has a requirement to consider alternative technologies practically available in Australia at the time each new consignment of intractable waste to Mt Walton Integrated Waste Disposal Facility is proposed;
 - (c) the consideration required for each consignment would be undertaken through the preparation of an Environmental Management Plan; and
 - (d) that to give effect to the conclusions (a) to (c) two new Environmental Conditions are required, as set out in appendix 4.
5. The Minister imposes the amended conditions and procedures recommended in Appendix 4 of this report.

Conditions

- The EPA recommends that the following conditions, which are set out in detail in Appendix 4, be imposed if the proposal by Waste Management (WA) is approved for implementation:
- The existing Environmental Conditions applied to the project (Ministerial Statement 353 published 28 April 1994), be subject to modifications necessary to:
- require the proponent to only dispose of intractable wastes identified in Appendix 1, Environmental Protection Authority Bulletin 726, "Potential Wastes for Disposal at the Intractable Waste Disposal Facility, Mt Walton East," as revised from time to time by the Minister for the Environment on the advice of the Environmental Protection Authority. A copy of the revised Appendix 1 is attached (Condition 5);

- include an additional condition for an Environmental Management Plan for each consignment of waste proposed for disposal to include a review of alternative destruction technologies practicably available in Australia at that time (Condition 7); and
- update Condition 2 to currently applied wording (Condition 2).

Appendix 1

List of submitters

Organisations:

Wesfarmers CSBP Limited

Kanowna Bell Gold Mines

The Environment Centre WA

Conservation Council of Western Australia

Government Agencies:

Health Department of Western Australia

Shire of Coolgardie

Appendix 2

References

CMPS&F and Environment Australia (1997), *'Appropriate Technologies for the Treatment of Scheduled Wastes. Review Report Number 4.'* Commonwealth of Australia, Canberra.

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Appendix 3

Statement of Conditions and Approvals

Ass # 168

Bull # 353

State # 044



MINISTER FOR ENVIRONMENT

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO
THE
PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

PROPOSED INTEGRATED WASTE DISPOSAL FACILITY
EASTERN GOLDFIELDS WESTERN AUSTRALIA

HEALTH DEPARTMENT OF WESTERN AUSTRALIA

This proposal may be implemented subject to the following conditions:

1. The proponent shall adhere to the proposal as assessed by the Environmental Protection Authority and shall fulfil the commitments made in the Public Environmental Report (copy of commitments attached).
2. Prior to construction of the proposal, the proponent shall undertake a drilling programme at the chosen site to confirm (or otherwise) the absence of potable water and to confirm (or otherwise) that the depth of clay is in excess of 15 metres, and forward results to the Environmental Protection Authority for assessment.
3. Prior to construction, the proponent shall undertake biological surveys to the satisfaction of the Environmental Protection Authority, to indicate the impact of the facility on any rare and/or endangered species.
4. Prior to construction, the proponent shall undertake a survey to the satisfaction of the Registrar of Aboriginal Sites, to determine if any Aboriginal sites exist on the project area.

Published On
26 OCT 1988

5. Prior to commissioning, the proponent shall prepare an Environmental Management Programme (EMP) to the satisfaction of the Environmental Protection Authority. The EMP shall be made available to the public and shall include:

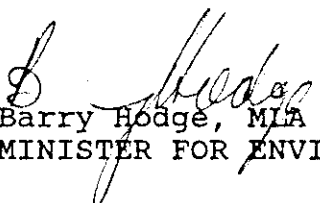
- . size of the incinerator;
- . operational procedures;
- . transportation of the wastes;
- . details of packaging of the wastes;
- . emergency procedures;
- . protection of any rare or endangered species found on or near the site;
- . disposal of waste containers and other solid wastes from the facility;
- . a monitoring programme.

6. Prior to commissioning, the proponent shall undertake, for all stages of the transport operation, the following:

- . establish detailed specifications for waste loading, transfer and unloading areas;
- . outline specific safeguards for rail containers and their contents;
- . detail plant site storage and handling requirements, including fire safety;
- . identify responsibility for the various aspects of transport and transfer operations;
- . prepare contingency plans for dealing with spillages should they occur; and
- . liaise with the local communities over emergency procedures.

The above matters shall be included in the Environmental Management Programme and shall be to the satisfaction of the Environmental Protection Authority and relevant Government agencies.

7. The proponent shall report the results of the monitoring programme to the Environmental Protection Authority at six monthly intervals. These results shall be made available to the public following their consideration by the Environmental Protection Authority.
8. Prior to commissioning, the proponent shall prepare a hazard and safety management strategy for the incinerator, to the satisfaction of the Environmental Protection Authority and relevant Government agencies.
9. Any proposal to dispose of wastes other than those specified in the Public Environmental Report at the Integrated Waste Disposal Facility, shall be referred by the proponent to the Environmental Protection Authority for assessment. No such wastes shall be disposed of at the facility unless it is found to be environmentally acceptable to do so following referral and assessment.
10. The proponent shall be responsible for decommissioning the facility and rehabilitating the site and its environs to the satisfaction of the Environmental Protection Authority.
11. The proponent shall, at least six months prior to decommissioning, prepare a decommissioning and rehabilitation plan to the satisfaction of the Environmental Protection Authority.
12. The proponent shall obtain a Works Approval (prior to construction) and a Licence (prior to commissioning) for the proposed facility under the provisions of Part V of the Environmental Protection Act 1986.
13. For any proposal to dispose of "other wastes" referred to the Environmental Protection Authority pursuant to Condition 9, and subsequently found to be acceptable, the proponent shall prepare (to the satisfaction of the Environmental Protection Authority) an Environmental Management Program, which shall include the issues listed in Conditions 5 and 6 for that proposal.


Barry Hodge, MIA
MINISTER FOR ENVIRONMENT

25 OCT 1988

SUMMARY OF COMMITMENTS

The Health Department makes the following commitments relating to this proposal to establish an integrated hazardous waste disposal facility.

The entire operation will be controlled by the Health Department of WA.

The facility will be owned and operated by the Health Department of W.A.

The facility will only be used for wastes generated in Western Australia.

Biological and archaeological site surveys will be undertaken prior to final selection of a site for the facility.

Site management will include the provision of fencing and signposting around the site, to discourage access by fauna and unauthorised personnel.

Construction activities at the plant site will be undertaken in accordance with statutory requirements, and appropriate management techniques will be implemented to ensure that noise and dust levels are acceptable.

Storage, handling and transport of wastes will be carried out only by properly trained and fully qualified operators.

Wherever possible, transportation of waste will be by rail.

Organochlorine wastes will be tested before transport to the disposal facility to allow optimum incineration control for each type of waste.

All wastes consigned for transport will be in double containment.

Waste unloading and preparation for incineration will be automated as far as economically possible to minimise chances of worker exposure.

Equipment will be provided in the incinerator unloading area to contain spills and to remove excessive levels of vapours from sealed containers.

Liquids awaiting incineration will be stored in a liquids tank farm that will provide full fire control, spillage containment and vapour control for all waste liquids stored.

Containers such as capacitors will be drained and prepared for treatment in the incinerator using automatic equipment.

Waste feed to the incinerator will be achieved by positive displacement metered pumping through an atomising lance for liquids and by a ram feed into an air lock for solids.

The primary and secondary combustion chambers will be operated at 15mm negative pressure to control fugitive emissions with facility to vary solids retention times and to achieve specified minimum temperatures, gas retention times and excess oxygen content in the flue gas.

An air pollution control system using either a wet or dry scrubber system will be installed to limit particulate and gaseous emissions to acceptable levels.

A combination of automatic and manual controls will be used to monitor and control the system.

Gaseous residues will be disposed of by enhanced atmospheric dispersion.

Aqueous residues will be contained and evaporated. Regular testing will be carried out.

Solid residues will be disposed of as landfill on-site.

Provision for emergency services will include firewater supply, foam dousing (or similar) in flammable liquid storage areas, firebreaks, emergency washing facilities, visual and audible alarms and contingency planning.

Specific emergency contingency planning will be implemented prior to the commencement of waste transport and disposal.

Standards set by United States agencies for incinerator efficiency will be adopted for the proposed disposal facility, these being that the Destruction and Removal Efficiency of the incinerator will be not less than 99.9999% and that the combustion efficiency will be not less than 99.9%.

Other standards for residues from PCB incineration will be as prescribed by the Environmental Protection Authority.

The standard for organochlorine levels in the workplace set by the US national regulatory authorities will apply.

Ground level concentrations of organochlorines will not exceed prescribed levels.

Contamination in all solid waste from the incinerator will be less than 2ppm which is well below allowable levels in the United States.

On-site liquid wastes will be fully contained and generally disposed of by evaporation unless they result from spillage in which case they will be fed into the incinerator.

Solid residues including remnants of burnt waste containers and residue from evaporation ponds will be disposed of as landfill. Monitoring of leachates will be carried out to ensure no pollution occurs from this waste.

A monitoring programme will be implemented involving continuous and intermittent sampling, testing and monitoring of plant operating conditions together with soil and leaf sampling and testing from around the incinerator site.

The Department of Occupational Health, Safety and Welfare will be asked to assist the Health Department to develop comprehensive guidelines for safe handling of waste during storage, transport and destruction operations and to specify first aid provisions for all personnel.

All personnel involved in the handling of wastes will be specifically trained in safety and emergency response procedures. This training will be coordinated by the Health Department in association with the Department of Occupational Health, Safety and Welfare, Department of Mines, Radiation Health Branch, Westrail, EPA and the Trades and Labour Council of W.A.

A thorough medical surveillance programme will be provided to give baseline and progressive personal health data throughout and beyond the employment period for each worker.

First aid and hygiene measures will be provided at the disposal facility.

The need for full protective clothing during normal operations will be evaluated just prior to the time that the facility becomes operational. Sufficient protective clothing will be provided at the site to cover emergency situations.

Noise levels in the disposal plant will comply with the Noise Abatement (Hearing Conservation in Workplaces) Regulations, 1983.

The requirements of the Commonwealth Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores 1987 and of other relevant current and future Codes of Practice dealing with radioactive wastes will be met.

A baseline radiation survey will be carried out at the disposal facility when site selection is completed.

Airborne dust concentrations, AMAD where applicable and alpha and beta activities will be measured.

A comprehensive radiation monitoring and health surveillance programme will be implemented.

ICRP annual dose limits will not be exceeded and all radiation exposures will be kept as low as reasonably achievable, economic and social factors being taken into account. Designated worker annual radiation doses will not exceed 25 millisievert per year.

Radiation protection assessments given in this PER for containerised wastes will be verified before use of such containers.

. Monitoring of radiation levels will continue over the life of the project.

. The Health Department will prepare annual reports for Parliament and for an initial five year period, for submission to the EPA, on the environmental management and monitoring commitments given in this document.

. The Health Department will initiate and co-ordinate a Control Committee to oversee the design, commissioning and operation of the facility. This Committee will include local representatives in its membership.

. The Health Department will initiate and co-ordinate a Community Liaison Committee to provide local residents with information on the operation of the facility.

Ass # 168-1

Bull # 572

State # 205



WESTERN AUSTRALIA
MINISTER FOR THE ENVIRONMENT

**STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

PROPOSAL : INTEGRATED WASTE DISPOSAL FACILITY,
MT WALTON, EASTERN GOLDFIELDS (168-1)

CURRENT PROPONENT: HEALTH DEPARTMENT OF WESTERN
AUSTRALIA

CONDITIONS SET ON : 25 OCTOBER 1988

Condition 1 has been amended to read as follows:

- 1A. In implementing the proposal, including the proposed amendment outlined in the proponent's Environmental Management Programme, "Transport and Storage of Wastes at the Integrated Waste Storage Facility East of Mt Walton" (1991), which provides for road transport of a limited amount of waste to the site, the proponent shall fulfil the commitments (which are not inconsistent with the conditions or procedures contained in this statement) made in the Public Environmental Report.
- 1B. Subject to the conditions in this amended statement, 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.


Bob Pearce, MLA
MINISTER FOR THE ENVIRONMENT

- 8 JAN 1992

Published on

8 JAN 1992



Ass # 823

Bull # 726

State # 353

WESTERN AUSTRALIA

MINISTER FOR THE ENVIRONMENT

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(PURSUANT TO THE PROVISIONS OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

**DISPOSAL BY SHAFT ENTOMBMENT OR TRENCH BURIAL
OF A RANGE OF INTRACTABLE WASTES
AT THE INTRACTABLE WASTE DISPOSAL FACILITY
MT WALTON EAST, SHIRE OF COOLGARDIE (823)**

HEALTH DEPARTMENT OF WESTERN AUSTRALIA

This proposal may be implemented subject to the following conditions:

1 Proponent 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 made in the Consultative Environmental Review and included in Environmental Protection Authority Bulletin 726 as Appendix 4; provided that the commitments are not inconsistent with the conditions or procedures contained in this statement. (A copy of the commitments is attached).

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 proponent.

- 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.

Published on

28 APR 1994

4 Register of Intractable Waste within the Mount Walton East Site

- 4-1 Within six months of the formal authority issued to the decision-making authorities under Section 45(7) of the Environmental Protection Act 1986, the proponent shall develop a register which shows the source, type, quantity and location of any intractable waste disposed of at the Mount Walton East site.

5 Time Limit on Approval

The environmental approval for this proposal is limited.

- 5-1 The proponent shall only dispose of intractable wastes identified in Appendix 1, Environmental Protection Authority Bulletin 726, "Potential Wastes for Disposal at the Intractable Waste Disposal Facility, Mt Walton East", as amended from time to time, for a period of five years from the date of publication of this statement. (A copy of Appendix 1 is attached.)

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. This application should include consideration of alternative destruction technologies. (On expiration of the five year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority.)

6 Compliance Auditing

In order to ensure that environmental conditions and commitments are met, an audit system is required.

- 6-1 The proponent shall prepare periodic "Progress and Compliance Reports", to help verify the environmental performance of this project, in consultation with 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.


G KIERATH, MLA
ACTING MINISTER FOR THE ENVIRONMENT

22 APR 1994

(EPA BULLETIN 726 APPENDIX 4)

Environmental Management Commitments

**DISPOSAL BY SHAFT ENTOMBMENT OR TRENCH
BURIAL OF A RANGE OF INTRACTABLE WASTES AT
THE INTRACTABLE WASTE DISPOSAL FACILITY
MT WALTON EAST (823)**

HEALTH DEPARTMENT OF WESTERN AUSTRALIA

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.

(EPA BULLETIN 726 APPENDIX 1)

DISPOSAL BY SHAFT ENTOMBMENT OR TRENCH BURIAL OF A RANGE OF
INTRACTABLE WASTES AT THE INTRACTABLE WASTE DISPOSAL FACILITY
MT WALTON EAST (823)

POTENTIAL WASTES FOR DISPOSAL
at the
INTRACTABLE WASTE DISPOSAL FACILITY
MT WALTON EAST
as at 31 March 1994

HEALTH DEPARTMENT OF WESTERN AUSTRALIA

Note: The following list may be amended from time to time.

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 4

Recommended Ministerial Conditions

RECOMMENDED ENVIRONMENTAL CONDITIONS

**MINISTERIAL DIRECTION TO AMEND CONDITIONS
APPLYING TO A PROPOSAL
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

DISPOSAL BY SHAFT ENTOMBMENT OR TRENCH BURIAL
OF A RANGE OF INTRACTABLE WASTES
AT THE INTRACTABLE WASTE DISPOSAL FACILITY,
MT WALTON EAST, SHIRE OF COOLGARDIE

Proposal:

The Intractable Waste Disposal Facility is located at Mt Walton East, 125 kilometres north west of Kalgoorlie-Boulder, in the Shire of Coolgardie (see figure 1).

The proposal involves the disposal by shaft entombment or trench burial of a range of intractable wastes as included in the list of potential wastes for disposal at the facility.

The list of potential wastes for disposal at the facility may be revised from time to time by the Minister for the Environment on the advice of the Environmental Protection Authority. (copy attached).

Proponent: Waste Management WA

Proponent Address: Level 8, 141 St George's Terrace, Perth WA 6000

Assessment Number: 1127

Previous Assessment Number: 823

Previous Statement Number: Statement No. 353 (published on 28 April 1994)

Report of the Environmental Protection Authority: Bulletin 954

Previous Report of the Environmental Protection Authority: Bulletin 726,
December 1993

The implementation of this proposal is subject to the conditions and procedures contained in Ministerial Statement No. 353 (April 1994), as amended by the following conditions and procedures:

Condition 2 of Statement No. 353 is deleted and the following condition is inserted:

2 Implementation

- 2-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.
- 2-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.
- 2-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

Condition 5 of Statement No. 353 is deleted and the following condition is inserted:

5 Acceptable Wastes

- 5-1 The proponent shall only dispose of intractable wastes identified in Appendix 1, Environmental Protection Authority Bulletin 726, "Potential Wastes for Disposal at the Intractable Waste Disposal Facility, Mt Walton East," as revised from time to time by the Minister for the Environment on the advice of the Environmental Protection Authority. (A copy of the revised Appendix 1 is attached.)

Condition 7 is inserted:

7 Environmental Management Plan

- 7-1 The proponent shall prepare an Environmental Management Plan for each consignment of waste proposed for disposal at the Intractable Waste Disposal Facility, Mt Walton East to the requirements of the Environmental Protection Authority.

This Plan shall include a review of alternative destruction technologies practicably available in Australia at that time for the waste proposed for disposal, to the requirements of the Environmental Protection Authority.

Proposal (823/1127)

The Intractable Waste Disposal Facility (IWDF), Mt Walton East is located approximately 125 kilometres north west of Kalgoorlie-Boulder in the Shire of Coolgardie.

The proposal is for the disposal by shaft entombment or trench burial of a range of intractable wastes as provided for in the list of potential wastes for disposal at the facility and documented in Ministerial Statement 353.

Following Assessment 168 (PER “Proposed Integrated Hazardous Waste Disposal Facility” Health Department of Western Australia 1988) the Minister set conditions (Statement 44) for the facility to include the burial of low level radio-active wastes and the disposal of other solid intractable wastes of a chemical nature. Condition 9 of Statement 44 requires the referral of any proposal to dispose of wastes other than those specified to the EPA. Condition 13 of Statement 44 requires the production of an “Environmental Management Program” for disposal of “other wastes” and hence is relevant to this proposal.

The list of potential wastes for disposal at the facility may be revised from time to time by the Minister for the Environment on the advice of the Environmental Protection Authority.

Table 1 summarises the key proposal characteristics.

Table 1: Key proposal characteristics

Element	Description
Site location	The Intractable Waste Disposal Facility (IWDF), Mt Walton East is located approximately 125 kilometres north west of Kalgoorlie-Boulder in the Shire of Coolgardie.
Potential wastes	The list of potential wastes identified in Appendix 1 of Bulletin 726 "Potential Wastes for Disposal at the IWDF, Mt Walton East", as revised from time to time by the Minister for the Environment on the advice of the Environmental Protection Authority. (An updated copy of Appendix 1 is attached.)
Process	Shaft entombment or trench burial of waste capped with water-shedding dome.
Environmental Management Program/Plan	<p>Each application to dispose of intractable wastes identified in Appendix 1 will require the preparation of an environmental management plan (including consideration of alternative destruction technologies) for disposal of those wastes at the IWDF, Mt Walton East.</p> <p>Issues to be considered in the Environmental Management Program include:</p> <ul style="list-style-type: none"> • transportation; • details of packaging; • emergency procedures; • disposal of waste containers and other solid wastes from the facility; <p>and</p> <ul style="list-style-type: none"> • a monitoring program; <p>For the transport operation the proponent will:</p> <ul style="list-style-type: none"> • establish detailed specifications for waste loading, transfer and unloading areas; • outline specific safeguards for rail containers and their contents; • identify responsibility for the various aspects of transport and transfer operations; • prepare contingency plans for dealing with spillages should they occur; <p>and</p> <ul style="list-style-type: none"> • liaise with the local communities over emergency procedures.
Reporting	Monitoring reports submitted to Environmental Protection Authority every 6 months and at least every 12 months a report documenting on-going monitoring programs and status of wastes disposed of on site.

Figure 1 - Regional Site location

DISPOSAL BY SHAFT ENTOMBMENT OR TRENCH BURIAL OF A RANGE OF
INTRACTABLE WASTES AT THE INTRACTABLE WASTE DISPOSAL FACILITY
MT WALTON EAST (823)

POTENTIAL WASTES FOR DISPOSAL
at the
INTRACTABLE WASTE DISPOSAL FACILITY
MT WALTON EAST
as at 7 March 1997

MINISTER FOR THE ENVIRONMENT

Note: the following list may be revised from time to time.

**POTENTIAL WASTES FOR DISPOSAL AT THE INTRACTABLE WASTE
DISPOSAL FACILITY, MT WALTON EAST
as at 7 March 1997**

- 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
- Arsenic-bearing wastes produced as industrial by-products.
- non-reactive solid wastes arising from acrylamide material.

Appendix 5

Summary of Submissions and Proponent's Comments

**RESPONSES TO PUBLIC SUBMISSIONS IN RELATION TO THE
APPLICATION TO EXTEND THE PERIOD OF APPROVAL OF DISPOSAL BY
SHAFT ENTOMBMENT OR TRENCH BURIAL OF A RANGE OF
INTRACTABLE WASTES AT THE INTRACTABLE WASTE DISPOSAL
FACILITY, MT WALTON EAST, WESTERN AUSTRALIA.
ENVIRONMENTAL PROTECTION ACT, SECTION 46. ASSESSMENT NO.
1127**

Each query will be answered using the same headings and numbering system used in the summary of submissions supplied.

Our responses are as follows:

WESFARMERS CSBP(CSBP)

Item 1 *Future reviews Section 1.2; the use of the phrase ‘... suitable destruction or management technology ...’ and the definition/meaning of ‘suitable’ is questioned. CSBP indicates it would support ‘suitable’ being defined through linkage to the four dot points listed on Page 1 of the document.*

Response 1 We agree that the meaning of suitable should be defined and agree that the four dot points on page 1 should be incorporated in the definition. The four dot points are:

- For commercial reasons some of these technologies may only be available overseas or interstate;
- Wastes that contain a mixture of contaminants may be impossible to treat by the technologies that are commercially available in Australia;
- The chemical or physical form of some wastes makes them difficult to treat in a commercially viable manner using the technologies that are available in Australia; and
- The quantities of some wastes an/or their geographical distribution make them difficult to treat in a commercially viable manner using the technologies that are available in Australia.

Item 2 *Applicability of technology Section 3.4; in respect of arsenic bearing wastes CSBP is exploring fixation/encapsulation technology.*

Response 2 The exploration of fixation/encapsulation technologies by CSBP is acknowledged.

Item 3 *Conclusion - CSBP supports the IWDF as an asset for industry. The company also supports the creation of a waste acceptance criterion for the site rather than a list of wastes.*

Response 3 Support for the creation of a waste acceptance criteria document is acknowledged.

SHIRE OF COOLGARDIE (COUNCIL)

Item 1 *The Council supported the application to extend the period of approval for the facility.*

Response 1 The support of the Council is acknowledged.

Item 2 *The Council approval changing the procedure for determining the suitability of the waste for disposal at the IWDF.*

Response 2 The support of the Council in relation to charges to the procedure for determining the suitability of waste for disposal at the IWDF is acknowledged.

Item 3 *The Council supported the preparation of a waste acceptance criteria document that demonstrates there is no practical alternative destructive technology available in Australia.*

Response 3 Support for the preparation of a waste acceptance criteria document that demonstrates there is no practical alternative destructive technology available in Australia is acknowledged.

KANOWNA BELLE GOLD MINES (KBGM)

Item 1 *Purpose Section 1.1; supports the document and requests the four dot points, page 1, be incorporated in future reviews.*

Response 1 Noted and agreed.

Item 2 *Future Reviews Section 1.3; concern is expressed at the term 'suitable' in the context of the document because it is not clearly defined. KBGM desires the four dot points, page 1, to be incorporated into a definition of 'suitable'.*

Response 2 Noted and agreed see under CSBP Item 1.

Item 3 *KBGM supports the development of new environmentally sound technologies rather than the continued utilisation of the IWDF.*

Response 3 Noted.

Item 4 *Applicability to IWDF Waste Categories Section 3.4; agrees that in situ vitrification (ISV) would not be appropriate for bagged or drummed arsenic from industrial processes.*

Response 4 Noted.

Item 5 *Conclusion; supports suggested changes for determining the suitability of waste for disposal at IWDF.*

Response 5 Noted.

THE ENVIRONMENT CENTRE OF WA (ECWA)

Item 1 *Supports the 'waste acceptance criteria document' as a means of reducing disposal at the IWDF.*

Response 1 Noted.

Item 2 *Table 1; ECWA advises that 'Solvents Australia Pty Ltd (NSW) advises that a demonstration plant currently under construction in the USA will be installed in Australia for high concentration wastes and surface treatment. (Source Chpt 12.4 On-line available at: <http://www.environment.gov.au/egp/3wm.htm>).*

Response 2 This information is noted and developments in the area will be followed, however, the information given in our Table 1 remains correct.

Item 3 *Conclusion; support for a 'waste acceptance criteria document' and that information be continually provided to waste disposers on technology updates and current trends. A review to be conducted every 2 to 3 years rather than at 5 years intervals.*

Response 3 Support for a waste acceptance criteria document is acknowledged. Waste disposers are required to review available technologies at the time they are proposing a particular waste for disposal and this review is assessed by the EPA during their consideration of the proposal. In this way, proposal specific information will be researched at the time a waste is proposed for disposal and thus the latest information can be accessed. As a result of this waste specific review process, it is not considered necessary to conduct an overall review of technologies at intervals of less than five years.

HEALTH DEPARTMENT OF WESTERN AUSTRALIA (HDWA)

Item 1 *Supports the 'waste acceptance criteria document' as it would result in stricter criteria for the proposed disposal of wastes at the IWDF.*

Response 1 The support of HDWA for the waste acceptance criteria document is acknowledged.

CONSERVATION COUNCIL OF WA

Item 1 *While the Council does not object to the proposal, it believes that the proposal should be reviewed again after no later than five years.*

Response 1 This present review is not a review of the IWDF proposal, but of alternative technologies. The reason for the review was to verify that there was an ongoing need for the facility.

It is proposed in the document to review alternative technologies every five years in addition to reviews to be conducted for particular wastes as they are proposed for disposal.