# Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory

# 2003

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## LIST OF APPENDICES

# 1 INTRODUCTION

- These Guidelines replace the 1995 *Guidelines for Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory*.

The challenge for those responsible for solid waste management is to adopt an integrated approach, which includes avoidance, recycling, minimisation, treatment and disposal. This approach advocates that disposal of waste to landfill should only be undertaken as a last resort. However, despite the many successful waste minimisation efforts and the growing viability of recycling, landfilling is still the only practicable method for dealing with many wastes. Given this, these Guidelines have been written to:

- help landfill operators be aware of NT Government requirements regarding development and operation of landfills; and
- provide landfill designers and operators with advice to help in minimising the impact of landfills on human health and the environment.

Under the integrated management approach noted above, stakeholders should determine whether a landfill facility is actually required. Transfer of waste to a landfill serving other communities may be a more economically viable option than developing a new landfill. Under such a system, waste is either transported directly to the landfill serving the area's communities or deposited in a transfer station before being taken to the landfill. Use of transfer stations and sharing landfill facilities in this manner can help reduce costs for all the communities involved.

While the guidelines have been written specifically for landfills, they only provide broad advice and should not be considered to constitute a technical manual. This is because each community's needs and circumstances are unique and site-specific investigation, design, operation and management plans will be required in each case to achieve the best outcomes. Various consultant companies and Government Departments will be able to supply expert advice in regard to addressing these issues.

The Guidelines is set out in the following sections, with each section featuring factors that should be considered in the establishment of a landfill facility:

- Approvals and Licensing
- Site Selection
- Landfill Design
- Operation and Management
- Decommissioning

# 2 APPROVALS AND LICENSING

## 2.1 Approvals

Under the *Waste Management and Pollution Control Act* (Section 30, Part 1 of Schedule 2) construction, installation or carrying out of works in relation to premises for disposing of waste by burial (landfills), other than:

(a) domestic waste generated by a domestic residence and disposal of the land on which the premises are situated;

(b) domestic waste from temporary construction camps;

(c) waste generated by pastoral activities that is disposed on the land on which the pastoral activities are carried out;

(d) waste rock, rubble and other inert materials used for the purpose of reclaiming land; and

(e) waste of a prescribed class

cannot be undertaken without an environment protection approval. This applies to all new landfills and to significant changes to existing landfills.

Applications for an environment protection approval must be made to the Chief Executive of the Department of Natural Resources, Environment and the Arts, who must consider the matters listed in Appendix 3 when determining whether to grant an approval.

A formal assessment under the *NT Environmental Assessment Act* may also be required in cases where the proposed work may have a significant impact on the environment. A copy of an *Application for an Environment Protection Approval* has been provided at Appendix 4. Further information concerning the process can be obtained from the Environment Protection Agency.

## 2.2 Licences

The *Waste Management and Pollution Control Act* (Section 30, Part 2 of Schedule 2) also requires that a landfill servicing the waste disposal requirements of more than 1000 persons[1] must not be operated without a licence.

As with applications for an environment protection approval, applications for a licence to operate a landfill must be made to the Chief Executive of the Department of Natural Resources, Environment and the Arts, who must consider the matters listed in Appendix 3 when determining whether to grant an approval. A copy of an Application for a Licence to Operate a Premises for the Disposal of Waste by Burial (Operate a Landfill) has been provided at Appendix 5. Further information concerning the process can be obtained from the Environment Protection Agency.

A licence is not required to operate a landfill that serves the equivalent of permanent population of less than 1000 persons and only accepts domestic waste, however the

[1] equivalent fulltime residents, not peak population loads or baseline permanent resident numbers

siting, design and operation of these facilities should be in accordance with the principles set out in these guidelines.

# 3 SITE SELECTION

Landfill siting requires detailed investigation. Factors that need to be addressed include:

- site capacity;
- hydrology;
- local topography and soils;
- adjacent land uses;
- climate;
- local flora and fauna; and
- road access.

## 3.1 Site Capacity

If practicable, a site with capacity for use over several decades should be acquired. Failing this the site acquired should provide at least 10 years of use as this will at least help minimise costs for site establishment and closure, keep operations running smoothly and provide adequate time to acquire the next site.

## 3.2 Hydrology

The pollution of surface and groundwater resources by leachate is a principal concern in relation to landfill location. Sites that contain, are located in, or are within 100 metres of the following are normally unsuitable for landfill facilities:

- water supply catchments or ground water recharge areas;
- coastal or estuarine areas subject to tidal inundation or storm surge;
- wetlands;
- areas which may be seasonally inundated, or are likely to be flooded in a major rain event; and
- water bodies, watercourses or open drains.

Depending on the circumstances, high water table conditions may also render a site unsuitable for use as a landfill facility.

## 3.3 Local Topography and Soils

TOPOGRAPHY

Careful consideration should be given to landforms in the vicinity of the disposal site as they may influence:

- the type of disposal method that can be utilised;
- the suitability of the site for construction of service facilities;
- surface water drainage management;
- groundwater conditions;
- soil erosion risk;

- access to the site;
- ability to screen the site from view; and
- the impact of winds on the site.

Ideally the slope of the site should not be greater than 5% (1 vertical to 20 horizontal) – particularly where the trench method of disposal is to be used.

SOILS

Sufficient soil should be available to provide adequate covering for wastes.

Soil structure should be suitable for construction of landfill cells and drainage works, as well as for excavation of trenches - where this type of facility has been chosen. The soil should also be of sufficiently low permeability to significantly slow the passage of leachate from the site. Sites in clay-rich environments are preferable, due to the low permeability, good workability and superior leachate retaining characteristics of these soils.

Preferred characteristics of soil to be used as cover material are listed in Section 5.2.

### 3.4 Adjacent Land Uses

Care should be taken to ensure that the establishment of a landfill facility will not jeopardise any environmentally sensitive areas or have a negative impact on existing or future land uses. Long term planning projections will be of help in assessing this.

Risks to public health and impacts on the areas surrounding the landfill can be limited by providing buffer zones between the landfill and sensitive areas. Some appropriate buffer distances between the facility and other land uses are:

- public roads > 100 metres
- industrial developments > 200 metres
- urban residential/commercial area > 500 metres; and
- rural residential area > 1000 metres.

### 3.5 Climate

Consideration should be given to the local climatic conditions when siting a waste disposal facility. For example: in the heavy rainfall situations which can occur in the Territory even sites with minimal slopes can incur severe erosion (through sheetflow runoff) if extra care isn't taken with the drainage works; and, sites that are not protected from prevailing winds will require extra efforts to control litter and dust.

### 3.6 Local Flora and Fauna

Sites that contain protected or endangered fauna and/or flora, or sensitive ecosystems are unsuitable for landfill facilities. Possible impacts on ecosystems, flora and fauna include the contamination of sensitive wetland areas by leachate.

Conversely, landfills often attract large numbers of birds, which can increase the risk to public health by spreading scavenged items away from the facility.

## 3.7 Road access

A landfill facility must have all weather access. Access roads should be located to minimise erosion and the alteration of drainage systems. Also, where possible the access road should be located so as to help keep the landfill screened from the main road past the facility.

Access roads to the landfill should be designed and constructed to minimise costs and yet provide reasonably easy access for the expected traffic under the various conditions affecting the site. Advice on design and construction can be obtained from the Transport and Infrastructure Division of the Department of Planning and Infrastructure.

# 4 LANDFILL DESIGN

The particulars of the site chosen for the landfill and the needs and requirements of the communities it will serve will have to be taken into account when designing the facility. Some of the more important matters to be addressed include:

- the most appropriate type of landfill facility;
- the waste containment cell
- water management;
- site fencing and screening;
- informative signs;
- recycling and reuse;
- staff facilities; and
- vehicle wash areas.

## 4.1 Type of landfill facility

Two methods of landfilling solid wastes are used in the Northern Territory, the area and trench methods. Consideration should be given to the factors affecting the siting and design of landfill facilities before the method of waste disposal is finalised.

AREA METHOD

The area method (Figure 1), and its variations, involve above ground waste disposal. The area method is suitable for use in a range of terrains and situations but is generally best suited for flat to gently sloping areas where design and operation will be simplified. The area method is also well suited to situations where high rainfall or high groundwater conditions (eg in the Top End) present problems for use of trenches.

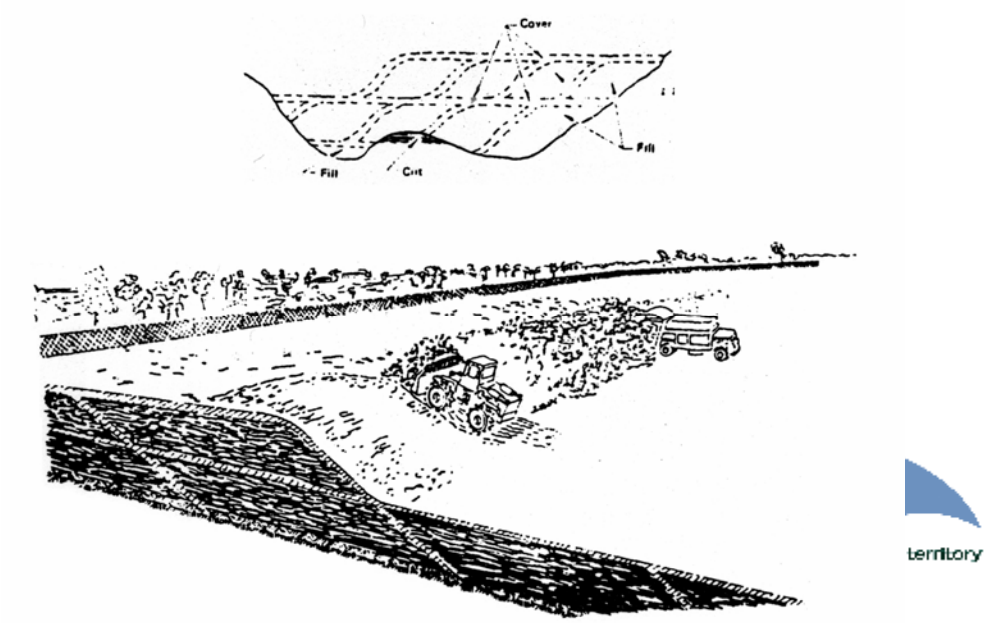

Figure 1: Area method of landfilling

TRENCH METHOD

This method involves burying waste below ground in excavated trenches (Figure 2). Trenches have the advantage that the soil excavated in forming the trench can be used for covering the waste disposed in the trench. However, in wet areas high groundwater conditions may make the use of trenches impractical. Trenches must be oriented perpendicular to the prevailing wind to help minimise blowing litter.

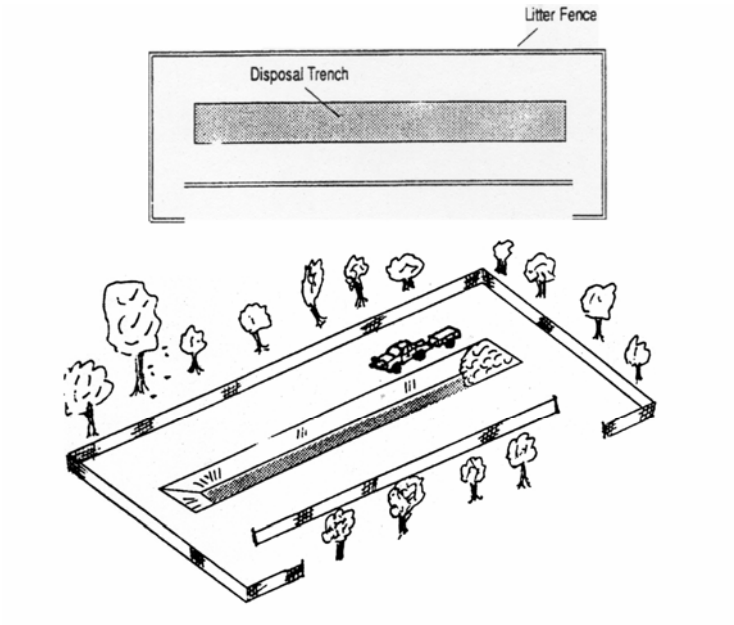


Figure 2: Trench method of landfilling

Trenches can be as deep as soil and groundwater conditions safely allow and should be at least twice as wide as the equipment that will be used for compacting the waste. As with many other things involved with landfills, the local situation will often determine the size of the trench that is employed, with larger communities usually using larger trenches. An example of a trench that might be suitable for a small Category B community is:

- 2.5 metres deep by 6 metres width by 50 metres (which can be extended periodically if the site circumstances allow).

## 4.2 Landfill Cell Construction

The building block common to both the area and trench type landfills is the cell (Figure 3). No hard and fast rule exists concerning the proper dimensions of a cell; consequently they can be vary considerably to suit the method of operation chosen, the site characteristics, and the nature and volumes of the waste received. Generally speaking though, cells should be designed to minimise cover material requirements, while maximising the volume of waste disposed. Also, cells should be kept reasonably narrow to minimise the area over which wastes will have to be compacted and to help prevent blowing litter.

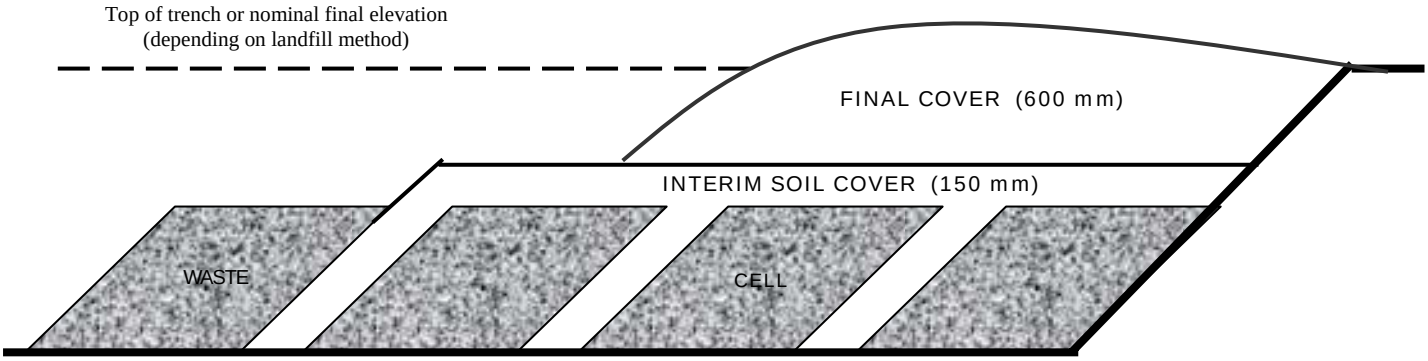


**Figure 3: Single layer trench or area type landfill (cutaway view)**

Cells should be covered periodically (see Section 5.2) to stop fly breeding and spread of fires. In addition to the periodic cover, the final layer of cells must be covered with additional soil during decommissioning to further isolate the wastes and help ensure long-term stability for the site.

The depth of soil cover on cells should be:

- Interim cover - 150mm - (on all cells)
- Final cover - 600mm (minimum) – (only on the final layer of cells)

### 4.3 Water Management

Water falling on and running across the landfill has the potential to spread disease, and pollute the environment. This is because the water can pick up harmful bacteria and hazardous materials by coming into contact with wastes. In addition, stormwater runoff can cause erosion, while inadequate drainage can lead to ponding and problems with mosquitos. Consequently, the site design should aim at preventing water from:

- coming into contact with exposed wastes;
- soaking through the covered landfill;
- reaching erosive velocities; or
- ponding.

When coupled with the operational practice of minimising the amount of waste that is open to the weather at any given time, this will provide a strong defence against the problems listed above.

To help achieve these goals the landfill site design should specify that the site be:

- graded to drain water away from the waste disposal area or provided with a system of drains or diversion bunds to achieve the same effect;
- graded or drained to prevent water from ponding; and
- provided with a final cover of low permeability soil that is compacted and graded to shed water.

In Category A sites groundwater protection works, such as a layer of compacted clay or a synthetic liner, may also be required to prevent leachate from contaminating potable groundwater.

In general, drains and diversion bunds should be capable of withstanding a 1 in 20 year rainfall event. Further advice on water management system design and on construction and maintenance of bunds, drains and leachate control works is available from NRETA and a range of engineering consultants.

## 4.4 Site Fencing and Screening

FENCING

Fencing should be installed to:

- control access to, and movement within, the site;
- reduce the dumping area to a minimal practical size;
- provide litter control; and
- protect areas which are undergoing decommissioning and rehabilitation.

Recommended fencing for landfill facility perimeters:

- Category A sites – 1800mm wire mesh security
- Category B sites – at least 1200mm wire mesh security
- Category C sites – at least 1200mm wire mesh

Fencing within the site should be appropriate for the task – eg 1.2 m high, three strand wire fencing may be adequate to protect areas being rehabilitated, while two or more panels consisting of 2 m high chicken wire mesh on a large steel frame would be appropriate for litter control.

SCREENING

Planting vegetation around the landfill helps improve the visual amenity of the site and provides wind barriers to help control dust and minimise blowing litter.

## 4.5 Signs

Signs containing information for users of the landfill should be posted at the entrance and at appropriate points within the facility.

The information should include:

- the name of the facility
- the owner and operator of the facility
- the hours of operation of the site
- the appropriate parties and telephone numbers to contact for
- reporting emergency situations
- making inquiries
- registering complaints
- where and how to dispose of waste
- any arrangements or facilities for recycling and reuse of material
- wastes which should not be dumped at the landfill and who to contact for advice on acceptable methods for disposal of such wastes)

- areas that are not open to the public – eg. areas under rehabilitation
- controls over scavenging, lighting or fires, littering and illegal dumping.

The signs should be written in languages appropriate to the user populations. Use of symbols can also be very effective.

### 4.6 Recycling and Reuse

Waste reduction through the recovery of recyclable and reusable materials can conserve resources, significantly extend the life of a landfill facility and may reduce pollution.

Where recycling is viable, areas should be provided for:

- storage of large items - such as cars, whitegoods tyres; and
- containers for depositing smaller items - such as glass, aluminium, car batteries, paper, plastics and waste oil.

Vegetation wastes can also be a major component of the wastes received at the landfill. Where this is the case, consideration should be given to recycling them, possibly by mulching. If vegetation is to be stored prior to recycling, the area used for storage should be:

- large enough to contain the volumes expected to accumulate between processing periods;
- isolated from the general waste disposal area; and
- surrounded by firebreaks.

### 4.7 Staff Facilities

Staff facilities should be provided at Category A sites, as well as at other sites where there is full-time, or significant part-time, supervision. At a minimum the following should be provided:

- washing and toilet facilities; and
- potable water supply.

### 4.8 Vehicle Wash Areas

Category A landfill sites should be provided with vehicle washing areas to help prevent waste materials and soil being transported off site.

Wash down facilities should be constructed so that they have:

- an impervious hardstand;
- a suitable water supply; and
- an appropriate wastewater collection and disposal system.

# 5 OPERATION AND MANAGEMENT

This section discusses the following issues relevant to the operation and management of landfill:

- vehicle access
- refuse covering;
- refuse burning;
- fire management;
- litter control and amenity;
- mosquito control;
- animal control;
- weed management;
- prohibited waste;
- transport of refuse;
- scavenging;
- supervision;
- staff training;
- water management;
- recycling;
- plant and equipment;
- monitoring; and
- accounting.

An Environmental Management Plan (EMP) addressing the above issues and taking into account public health, environmental, social and economic concerns should be produced for landfills serving a permanent population equivalent of 1000 or more. Formal EMPs need not be developed for landfills serving smaller populations but even a brief informal consideration of the issues will be helpful to establishing and maintaining good landfill operations. Guidelines for the preparation of an EMP have been provided at Appendix 6.

## 5.1 Vehicle access

Roads within the landfill facility should be regularly maintained to ensure access to the disposal and recycling areas at all times. Adequate traffic barriers and signs should be installed along the roads to help direct patrons to disposal and recycling areas and prevent access to areas undergoing rehabilitation.

## 5.2 Refuse Covering

Covering waste with soil has the following advantages:

- controls flies and rodents;
- reduces odour;
- reduces spreading of litter;
- helps with fire control;
- discourages scavenging;
- helps reduce water pollution; and
- improves the appearance of the landfill.

Soil used as landfill cover should preferably have the following qualities:

- low permeability;
- good compaction characteristics;
- good trafficablity under all weather conditions;

- resistance to swelling and cracking when wet and dry;
- resistance to wind erosion
- good resistance to slumping under all conditions; and
- ability to support plant growth.

Loam, clay loam and some clay soils have these preferred characteristics, however where these are not available the best of the soils which are readily available should be used.

Cover material should be applied as follows

| | Interim Cover | | | Final Cover |
|---|---|---|---|---|
| Type of Landfill Facility | Category A | Category B | Category C | All Categories |
| Area fill methods | 150mm daily | 150mm daily/ weekly | 150mm weekly/ monthly | 600mm (min) |
| Trench method | 150mm daily | 150mm daily/ weekly | 150mm weekly/ monthly | 600mm (min) |

At least a one-month supply of cover material should be maintained on-site at all times.

### 5.3 Refuse Burning

In general, burning of refuse is not promoted as a method for disposing of wastes.

However, it is recognised that for many small communities without adequate equipment and funds to carry out regular covering of wastes, careful use of burning can provide a simple, low cost solution that has a minimal impact on community health and the environment. In such situations, a waste burning management plan should be drawn up and implemented. The objectives of the plan should be:

- as short, clean and smoke-free burns as possible;
- protection of the public;
- prevention of the spread of fire from the burn to areas outside the landfill;
- ensuring that the personnel who carry out the burns are well trained; and
- integral involvement of the local fire authority with planning and approving burns.

As a community grows in size, has better funding and access to equipment, and can exercise more control over its landfill burning should be phased out and replaced by burial and recycling programs.

### 5.4 Fire Management

Firebreaks should be established and maintained around the entire site to the satisfaction of the local fire authority. As with any other burning carried out on the site, permission should be obtained from the local fire authority for burning vegetation cleared from firebreaks.

Where a water supply is available for fire fighting, clear access should be maintained for fire control vehicles. A stockpile of soil should also be maintained for smothering fires.

Unmanaged fires should be extinguished as soon as possible since they may spread off site or create dangerous conditions within the landfill that may make portions of it unsafe for months.

### 5.5 Litter Control and Amenity

Litter is a problem at all landfills; it is unsightly and pollutes surrounding areas.

Mesh fencing on the site perimeter and moveable fencing at the disposal area can be used to catch and reduce blowing litter. This primary control should be followed up by regular patrols of the site, the access road and adjacent properties to remove accumulated litter and return it to the disposal area.

Litter fences should be maintained in good repair and the moveable fences should be checked periodically to ascertain whether they are working effectively, since changes in the orientation of the disposal area or in the direction of prevailing winds may significantly change the situation.

### 5.6 Control of Mosquitoes and other Biting Insects

Poorly operated and managed landfill sites can facilitate rapid breeding of insects. The following measures should be taken to reduce the nuisance and risk to health associated with mosquitoes and other biting insects:

- all items likely to collect water should either be: removed from the site; buried or holed to prevent water from accumulating in them;
- the surface of the landfill should be shaped and drained to prevent water from ponding;
- During the wet season, there should be weekly checking for mosquito breeding in any areas that are ponding water. Any mosquito breeding should be treated with the biological larvicide *Bacillus thuringiensis* subsp. *israelensis*; and
- Washdown areas and any other areas that receive water runoff from irrigation should also be periodically checked for mosquito breeding during the dry season.

Further advice on eradicating biting insects and their breeding habitats is available from the Senior Medical Entomologist, Department of Health and Community Services.

### 5.7 Animal Control

Landfills can harbour vermin and other animal pests, such as rats and feral cats. These pests can seriously threaten local native animal populations and transfer disease causing organisms to humans, either directly, or through contamination of food or other animals.

To protect public health and minimise harm to native animals an operational plan for animal control should be developed and implemented. Elements of the plan should include:

- installation of appropriate fencing to prevent animals from gaining access to the wastes disposed of at the site; and
- implementation of other controls (such as baiting and trapping programs and covering wastes with soil) to eradicate pests and to prevent animals from gaining access to, and harbouring in, the landfill.

The Department of Health and Community Services and Department of Nautral Resources, Environment and the Arts can provide advice on monitoring and control of vermin and feral animals.

### 5.8 Animal Carcasses

Improper disposal of dead livestock and poultry can lead to infection of other animals and possibly humans. Dead livestock and poultry should not be disposed of at a landfill facility without approval from the Department of Natural Resources, Environment and the Arts, who will be advised by the Department of Business, Industry and Resource Development and Department of Health and Community Services.

The carcasses of livestock and poultry approved for disposal and the carcasses of domestic animals should be disposed of in an area separate from the working face of the landfill. Disposal should be carried out under supervision and immediate burial with protection from vertebrate scavengers.

### 5.9 Weed Management

Declared weeds disposed of at a landfill facility (e.g. mission grass) can readily spread from the site and cause problems with native plant populations and/or be poisonous to animals. Declared weeds should not be disposed of at a landfill unless the facility has been declared a designated weed disposal area under the *Weeds Management Act*. Approval for a landfill to be a designated weed disposal area must be obtained through the Weeds Branch of NRETA; but in general, landfills that have less than fulltime supervision are inappropriate areas for disposal of declared weeds.

Signage at the entrance to the landfill facility should indicate whether declared weeds are accepted at the site, and:

- if not, should direct the persons wanting to dispose of the weeds to the Weeds Branch of NRETA for advice on proper treatment and destruction of the weeds; or
- if so, should list any measures or restrictions the disposer should be observing within the landfill.

Note that the *Weeds Management Act* prohibits transportation of declared weeds over public roads, or from one property to another, without a permit. Permits must be obtained through the Weeds Branch of NRETA.

Where declared weeds are illegally disposed of at the landfill, or are found growing at the landfill they should be treated and destroyed in accordance with the requirements of the Weeds Branch of NRETA. Personnel maintaining the landfill should able to identify the various types of declared weeds which may exist in the region so that they can monitor for their presence at the facility and undertake appropriate treatment and destruction action.

### 5.10 Prohibited Waste

Unless otherwise approved by the Environment Protection Agency, the following materials are not acceptable for disposal in landfills:

- weeds (as noted in 5.7 above);
- pesticides and pesticide containers which have not been cleaned in accordance with the Avcare Standard for Effective Rinsing of Farm Chemical Containers (http://www.drummuster.com.au/uploads/AgsafeStandard_EffectiveRinsin.pdf);
- commercial quantities of hazardous wastes including :
  - "dangerous goods" under the provisions of the *NT Dangerous Goods Act* (http://www.nt.gov.au/lant/hansard/hansard.shtml); and
  - any material scheduled as a "listed waste" under the NT Waste Management and Pollution Control (Administration) Regulations (http://www.nt.gov.au/lant/hansard/hansard.shtml).

Any approvals that the Environment Protection Agency may grant for disposal of prohibited wastes (eg. for asbestos, or for clinical or radioactive wastes) will be contingent on special procedures being developed and implemented for handling and disposing of the nominated wastes.

Advice on development of these procedures can be obtained from:

- NT Worksafe and the Environment Protection Agency regarding approved methods for handling and disposal of dangerous goods and listed wastes; and
- the Chief Health Officer, Department of Health and Community Services, regarding approved methods for disposal of clinical and radioactive wastes.

### 5.11 Transport of Refuse

All refuse should be conveyed to the site in such a manner as to prevent the escape of either solid or liquid matter from the conveyance.

### 5.12 Scavenging

In general, scavenging is not supported; however, if the practice is allowed, only persons authorised by the managers of the landfill should be allowed to conduct scavenging operations.

In any case, scavenging of the following items should not be allowed:

- food
- clothing
- bedding
- toiletries and other personal effects.

### 5.13 Supervision

All landfill facilities require supervision. The following is a general guide to the level of supervision required:

- Category A sites – supervision throughout operations
- Category B sites – daily inspections
- Category C sites – weekly inspections

### 5.14 Staff Training

Staff employed at landfill facilities should be trained in accordance with the operational requirements of the facility.

### 5.15 Water Management

On-site water management should aim to:

- prevent surface runoff from flowing into waste materials; and
- minimise production of leachate.

Water that does become contaminated should be retained on site and evaporated or treated to an acceptable standard prior to discharge to avoid polluting surrounding areas. Should off-site discharge of wastewater be necessary, a license may be required under the *Water Act*. The Environment Protection Agency should be contacted for advice on this matter.
Clean water should be discharged off the site in a way that prevents it from pooling or causing erosion.

The Environment Protection Agency can help advise on water management systems.

### 5.16 Recycling

Large items, such as cars, whitegoods and tyres, should be grouped neatly by type so as to conserve space and facilitate recovery.

Areas for smaller recycled materials like glass, paper, plastic and waste oil should be checked and serviced regularly to ensure that they remain neat and tidy, and that bins and storage tanks do not overflow.

Arrangements should be made with a scrap dealer for periodic collection of materials collected for recycling. If several communities band together to have their materials collected at the same time it may be more financially attractive for the dealer and make it easier to set up the collection.

In areas where the potential for recycling is limited or non-existent, opportunities for reuse of wastes in local projects should be examined. The Environment Protection Agency may be of assistance in this matter.

## 5.17 Plant and Equipment

WASTE COMPACTION

Suitable equipment for compacting and covering wastes should be available at all times at Category A sites but at Category B and C sites it should at least be available to carry out these operations in accordance with the schedules adopted for the site.

Compaction equipment should be chosen for its ability to:

- achieve good volume reduction;
- give trouble-free service; and
- run economically.

In heavy-duty situations, like larger Category A sites, this will most likely require use of a specialised trash compactor with a blade for spreading wastes and cover material. In other sites a variety of other equipment may give adequate service but in general the larger the population served by the landfill, the more robust and capable of high rates of production the equipment will have to be to enable the landfill to be operated efficiently and effectively.

SUPPLY OF COVER MATERIAL

Depending on arrangements for supply of cover material, haul trucks, dozers, and loaders may be required. At larger sites these may be permanent fixtures but at most sites they will have to be supplied on a periodic basis, either by the landfill operator or by outside contractors.

FIRE FIGHTING

Equipment for combating small fires – e.g. fire extinguishers, water tanks, pumps and hoses - should be available at Category A sites, but at sites with periodic, or no, supervision on-site equipment may amount to no more than a water tank or a fire extinguisher. In such cases, the local fire authority may be able to provide equipment and combat services.

## 5.18 Monitoring

All landfill operations should have a monitoring program for detecting situations that are, or could be, adverse to public health or the environment. Monitoring programs can cover:

- Water quality – ground and surface
- Air quality
- Rat and other vermin
- Mosquitos
- Flies
- Feral animals – cats, dogs, etc
- Noise
- Dust
- Litter
- Odour
- Weeds

Monitoring programs will vary from reasonably comprehensive at larger Category A sites (which may cover all the issues listed above and require laboratory analysis of samples) to very simple at small Category B and C sites (which may only require visual monitoring for potential health problems).

The Environment Protection Agency and the Department of Health and Community Services can provide advice on developing and conducting monitoring programs.

## 5.19 Accounting

Good accounting is essential to achieving efficient and cost effective management of the landfill. Unless the costs associated with acquisition, development, operation and decommissioning of a landfill are clearly debited against a separate landfill account financial planning for future operations is often reduced to educated guesswork, which can result in serious underestimation of costs (particularly in situations where turnover of administrative and works staff is high).

Other advantages of good cost accounting are that: a clear record of costs will help in applying for grants for upgrades to landfill facilities; and applications for increased funding for operating the landfill are more likely to succeed where hard evidence of expenditure is at hand.

# 6 DECOMMISSIONING

## 6.1 Planning for Decommissioning

Ideally, planning for decommissioning of a landfill should be an integral part of the site development process. Planning will obviously need to be considerably more detailed in regard to Category A facilities and larger Category B facilities but the issues that should be covered in decommissioning planning include:

- Desired future use of the site
- Rehabilitation works which will be needed to prepare the site for future use
- The operational plan for rehabilitating the site; including design to be followed, timing and sequence of works, quantities of materials required, monitoring required, provision for rectifying problems which arise
- Funding for rehabilitation work (cost estimates for work, timing of expenditures, acquisition of funds, sources of funding)
- Issues for waste disposal following decommissioning of the site, including:
  - The method of waste disposal that will be adopted when the current site is decommissioned (eg. landfilling in the local area vs. transfer of wastes to another area's landfill)
  - What will be required to put the chosen method into effect (eg. acquisition of a new landfill site, construction of a transfer station, or acquisition of new earthmoving or compaction equipment to upgrade operations at the new landfill)
  - Timing for initiating the above actions to ensure a smooth transition to the new operations when the current site is decommissioned
  - Funding that will be required for any land acquisitions, construction of capital works or purchase of equipment required to help give effect to the chosen method (eg. how much may be involved and how and when should the money be raised/set aside)

## 6.2 Future Use

Decommissioned landfill sites are generally more suited for passive land uses such as playing fields than for activities that require buildings or other structures, but if the use chosen includes structures design and construction should be managed by qualified engineering consultants. In the absence of plans for other usage of the area, the site should be returned to a natural state by revegetating it with plants native to the area.

### 6.3 Rehabilitation of the Site

In general, rehabilitation work should be carried out on a progressive basis rather than to wait until the facility has been closed for disposal. For example, when a trench has been filled to capacity and no further filling will take place on top of it, or when a portion of an area fill type landfill has been filled to the desired final level, it should be capped with a minimum of 600mm of compacted suitable soil and contoured to ensure that water will run off without ponding. The size of the area chosen for such progressive rehabilitation may vary widely from a few tens of square metres to a hectare or more depending on the situation at the landfill.

Areas undergoing rehabilitation should be isolated from the remainder of the site; both to prevent their continued use for waste disposal, and to help them stabilise.

As the stabilisation process will take some time to complete, the areas under rehabilitation will need to be monitored and maintained for a number of years after closure to ensure that any significant problems with leachate management, site drainage or revegetation that may arise are spotted and rectified (the larger, more complex sites may take several years to reach a stable state).

Evidence that the decommissioned site poses no significant risk to health and/or the environment will normally be required before Development Consent can be given to use the site for other purposes.

## GLOSSARY

**aquifer** a body of permeable rock that is capable of storing significant quantities of water.

**bund** longitudinal mound of soil or other inert material constructed to protect areas from surface runoff.

**burning** is the permitted burning of waste following conditions set by the Environment Protection Agency.

**category A, B and C** are categories of landfills as noted in the table below

| LANDFILL CATEGORIES * | | |
|---|---|---|
| **A** | **B** | **C** |
| • Community facilities serving greater than 2000 population<br>• Industrial landfills regardless of size | • Community facilities serving between 500 - 2000 population | • Community facilities serving less than 500 population |
| * The population figures used in these categories are for equivalent fulltime residents, not for peak population loads or for baseline permanent resident numbers. | | |

**cell** a portion of compacted wastes that is isolated from other wastes by a covering of soil. The compacted waste and the soil covering together constitute the cell.

**environmental management plan** details how a landfill facility will operate, be managed and any monitoring that is to take place.

**final cover** the final layer of material used to cover the landfill site at the trench or cell has been filled to capacity

**groundwater** water that occurs below the Earth's surface

**leachate** is generated by water passing through waste materials in landfills and becoming exposed to and mobilising a range of contaminants.

**liner** synthetic or natural material placed beneath a landfill site, intended to prevent leachate from entering the groundwater or to restrict the upward movement of ground water into the landfill.

**Q100 floodline** the line adjacent to a waterway at which the probability of floodwaters reaching that height is 1 in 100 each year.

**recycling** conversion of a waste product to a form in which it can be reused.

**permeability** the property of a soil to allow liquids to pass through it. A low permeability soil will allow less liquid to pass through it per given time than one with a high permeability. Generally the smaller the pores in the soil the lower the permeability

**reuse** the repeated use of a product.

**scavenging** is the unauthorised removal of waste from a landfill facility; food, clothing, bedding, toiletries and other personal effects shall not be scavenged from landfill sites.

**solid waste** is any non-hazardous degradable waste including putrescible wastes, garden wastes, uncontaminated biological material and clinical and related wastes, which contain less than 200 ml/tonne or 200 g/tonne of hazardous substances, has an angle of repose greater than 5° and has no free liquids.

**unsuitable area** an area that is deemed to be unsuitable for a landfill facility due to geographical, environmental, cultural or economical reasons.

**vector** a carrier of a disease or infection.

## APPENDIX 1 Sources of advice on landfill issues

| ISSUE | ADVISORY AGENCIES |
|---|---|
| **Approval of the Landfill and Licensing** | - Environment Protection Agency, EPA |
| **Clinical Waste** | - Environmental Health Branch, DHCS |
| **Crown Lease** | - Land Administration, DPI |
| **Dangerous Goods** | - NT Worksafe, DEET |
| **Determination of Flood Potential** | - Conservation & Natural Resource Management Division, NRETA |
| **Drainage** | - Conservation & Natural Resource Management Division,<br>- NRETA<br>- Medical Entomology Branch, DHCS<br>Environment Protection Agency, NRETA |
| **Environmental Impact Assessment** | - Environment Protection Agency, NRETA |
| **Fire Breaks** | - Bushfires Council, NRETA |
| **Flora and Fauna Issues** | - Conservation & Natural Resource Management Division,<br>- NRETA<br>Environment Protection Agency, NRETA |
| **Ground Water Issues** | - Conservation & Natural Resource Management Division, NRETA |
| **Heritage Issues** | - Environment Protection Agency, NRETA |
| **Insect Control** | - Medical Entomology Branch, DHCS |
| **Planning Approval** | - Lands and Planning Division, DPI<br>- Development Consent Authority |
| **Radioactive Waste** | - Environmental Health Program, DHCS |
| **Recycling** | - Environment Protection Agency, NRETA |
| **Road Access** | - Transport and Infrastructure Division, DPI<br>Local Government Authority/Local Government Association |
| **Site Rehabilitation** | - Conservation & Natural Resource Management Division, NRETA |
| **Suitability of Soils** | - Conservation & Natural Resource Management Division, NRETA |
| **Weed Management and Disposal** | - Weeds Branch, NRETA |

Key to Abbreviations

**NRETA**- Department of Natural Resources, Environment and the Arts

**DHCS**- Department of Health and Community Services

**DEET**- Department of Employment and Educational Training

**EPA**- Environment Protection Agency

# APPENDIX 2 Classification of Wastes

| | |
|---|---|
| **Domestic Garbage** | Wastes generated from household sources - may include hazardous or putrescible waste |
| **Hazardous Waste** | Any waste containing significant quantities of a substance which may present a danger to the life or health of living organisms when released into the environment These wastes may both include medical and radioactive wastes. |
| **Clinical Waste** | is that which has the potential to cause sharps injury, infection or public offence, and includes sharps, human tissue waste, laboratory waste, animal waste resulting from medical, dental or veterinary research or treatment that has the potential to cause disease.<br>Clinical waste usually includes the following sub-categories:<br>· discarded sharps;<br>· laboratory and associated waste directly involved in specimen processing;<br>· human tissues, including materials or solutions that contain free-flowing or<br>· expressible blood; and<br>· animal carcasses that are contaminated or suspected to be contaminated by pathogenic organisms, unless treated to standards approved by the Chief Health Officer. |
| **Putrescible Waste** | Organic wastes capable of decomposition by micro-organisms. |

## APPENDIX 3 Matters to be considered in granting approvals and licences

Under the Waster Management and Pollution Control Act (Section 32) the Chief Executive of the Department of Natural Resources, Environment and the Arts must consider the following matters when determining whether to grant approvals and licences:

(1) In determining whether to grant an environment protection approval, environment protection licence or best practice licence, the Chief Executive Officer must have regard to –

(a) the objectives of this Act;

(b) all relevant environment protection objectives;

(c) a relevant compliance plan or performance agreement;

(d) the siting, design and layout of the premises;

(e) the sensitivity of the surrounding land use and environment;

(f) if the activity or premises or proposed activity or premises have been assessed under the *Environmental Assessment Act* –

(i) a public environmental report or environmental impact statement made under that Act in relation to the activity or premises; and

(ii) comments, suggestions and recommendations made for the purposes of that Act by the minister for the time being administering that Act in relation to the premises or activity;

(g) the results of an environmental audit, if any, submitted as required under section 48 or 49; and

(h) best practice environmental management for the particular activity specified in Schedule 2 to which it is intended the approval or licence is to relate.

(2) The Chief Executive Officer must, before granting an environment protection approval, environment protection licence or best practice licence, consult with and have regard to the requirements of or comments from –

(a) all Agencies that, in the opinion of the Chief Executive Officer, have functions in relation to waste management or pollution that are relevant to the application;

(b) all prescribed persons, offices and bodies that have functions in relation to waste management or pollution that are relevant to the application; and

(c) any other persons the Chief Executive Officer thinks fit.

**FILE NO:**……
(office use only)

A1

Northern Territory Government
Department of Infrastructure, Planning and Environment

***Northern Territory Waste Management & Pollution Control Act* 1998**

# APPLICATION FOR AN ENVIRONMENT PROTECTION APPROVAL

For further information on approvals (including fees) refer to the "*Guide to Licences and Approvals under the Waste Management and Pollution Control Act 1998"* available from the Environment Protection Agency, Department of Natural Resources, Environment and the Arts (phone 8924 4139) or on the website at www.nt.gov.au/nreta.

## SECTION A – APPLICANT/APPLICATION DETAILS

1

| | | | |
|---|---|---|---|
| Full name of applicant (person or organisation) who will legally hold approval | | | |
| **ACN (body corporate)** | | | |
| **Street address/registered office** | Number | Name | |
| | Town/Suburb | State | Postcode |
| **Postal address** | PO Box | | |
| | Town/ Suburb | State | Postcode |
| **Contact person** | Name | Position | |
| **Telephone Number** | B/Hours | A/Hours | |
| | Mobile | Fax | |
| **E-mail address** | | | |
| **Organisation (if different from applicant)** | | | |

- Please state the preferred number of years that you wish your approval to be in force.

  _____

## SECTION B – ACTIVITY TO BE CONDUCTED AT PREMISES

| | |
|---|---|
| **Indicate the type of activity to be conducted on the premises (as defined in part 1 of schedule 2 to the *Waste Management and Pollution Control Act*)** | |

- Does the application relate to the approval of (tick whichever is applicable):

| | |
|---|---|
| ☐ | **The construction of a new premises** |
| ☐ | **The modification of an existing premises** |

- Has the proposed premises been subject to (tick if applicable):

| | Yes | No |
|---|---|---|
| **Development permit issued pursuant to the Planning Act?** | ☐ | ☐ |
| **Environmental Assessment pursuant to the *Environmental Assessment Act*?** | ☐ | ☐ |
| **If yes please provide details (permit numbers, outcomes, etc.)** | | |

| | | |
|---|---|---|
| **Proposed commencement and completion dates of construction of premises/modifications** | Commencement Date / /20 | Completion Date / /20 |

| | |
|---|---|
| **Describe the nature of the construction, works and/or alterations in relation to the premises subject to this application** | |

| | |
|---|---|
| **Describe the nature of the operations of the premises once commenced. (eg design throughput, times of operation, materials handled, etc)** | |

## SECTION C – LOCATION OF PREMISES TO BE APPROVED

- Please provide a map as an attachment showing the location of the proposed premises in relation to the surrounding area and land uses.
- Provide details of the exact location of the premises by **either** of the following:

| | | |
|---|---|---|
| **1. Longitude/latitude for the boundaries of the premises** | Longitude (Degrees, Minutes & Seconds) or Easting | Latitude (Degrees, Minutes & Seconds) or Northing |
| | | |
| **2. Street address** | Number Name | |
| | Town/Suburb State Postcode | |
| **3. Parcel of land** | | |

- Provide a map(s) of the design and layout of the premises as an attachment.

## SECTION D – CONSENT OF OWNER/OCCUPIER

- If the applicant does not own the site, provide details of the owner:

| | | |
|---|---|---|
| Full name of land or premise owner | | |
| **Street address** | Number Name | |
| | Town/Suburb State Postcode | |
| **Telephone Number** | B/Hours A/Hours | |
| | Mobile Fax | |

- Provide evidence that you have the consent of the owner of the site to conduct the activity relating to the premises.
- If there are any conditions or restriction placed on the usage of the land by either the owner or other authorities please provide details of these as an attachment.

## SECTION E – WASTE EMISSION DETAILS

**Activity details**

- Detail the nature and quantity of waste products disposed of to air, land and water deriving from (include a separate sheet if necessary):

| | **Type of waste** | **Expected quantities per annum (tonne or $m^3$)** |
|---|---|---|
| **The construction of the premises** | | |
| **The premises once operational** | | |

## SECTION F – ENVIRONMENTAL MANAGEMENT INFORMATION

Please attach any supporting documentation such as:

- An Environmental Management Plan (EMP) or an equivalent document for your premises.
- If not already included in the EMP, a description of how emergency situations will be dealt with (eg accidental chemical spillage or fire) as a result of the construction of the premises and the premises once operational.

## SECTION G – DECLARATION

This declaration must be completed by the applicant or by a person(s) who is/are authorised to act for the applicant.

**I/we hereby declare that the information provided in this application and accompanying documents, is to the best of my/our knowledge, true and correct*.**

| | |
|---|---|
| Full Name<br>(BLOCK LETTERS) | |
| Signature | Date / /20 |
| Position of Signatory | |

Common Seal,
Public Authority Seal or
Council Seal (if used)

* Provision of false or misleading information, whether by reason of the inclusion or omission of any particular, may give rise to revocation or suspension of the approval.

**Indicate the number of additional pages attached to this application _____pages**

The fee for processing an application for an approval is:

For an LNG/methanol plant - $0.005 per tonne of hydrocarbons processed
For all other activities - $300

**Processing of the application will not commence until the fee is received.**

Once completed and signed, this form, the application fee and appropriate attachments should be sent to:

**Environment Protection Agency**
**Department of Natural Resources, Environment and the Arts**
**PO Box 496**
**PALMERSTON NT 0831**

**OFFICE USE ONLY**

| |
|---|
| **DATE APPLICATION REC'D** |
| **DATE FEE RECEIVED** |
| **RECEIPT NUMBER** |
| **LICENCE NUMBER** |

**FILE NO:**……
(office use only)

L1

Northern Territory Government
Department of Infrastructure, Planning and Environment

***Northern Territory Waste Management & Pollution Control Act* 1998**

# APPLICATION FOR A LICENCE TO OPERATE A PREMISES FOR THE DISPOSAL OF WASTE BY BURIAL (OPERATE A LANDFILL)

**NB** - A licence is only required for landfills servicing a population of 1000 or more persons.

For guidance on completing this form, you should refer to the "Guide to completing the application for a licence to operate a premises for the disposal of waste by burial (operate a landfill)". For further information on licences and approvals (including fees) refer to the "Guide to Licences and Approvals under the Waste Management and Pollution Control Act 1998".

Both guides are available from the Department of Natural Resources, Environment and the Arts (phone 8924 4139) or on the website at www.nt.gov.au/nreta

## SECTION A – DETAILS OF APPLICANT / APPLICATION

| | | | |
|---|---|---|---|
| Full name of applicant (person or organisation) who will legally hold licence | | | |
| **ACN (body corporate)** | | | |
| **Street address/registered office** | Number | Name | |
| | Town/Suburb | State | Postcode |
| **Postal address** | PO Box | | |
| | Town/ Suburb | State | Postcode |
| **Contact person** | Name | Position | |
| **Telephone Number** | B/Hours | A/Hours | |
| | Mobile | Fax | |
| **E-mail address** | | | |
| **Organisation (if different from applicant)** | | | |

- **Please state the preferred number of years that you wish your licence to be in force (up to 7yrs).**

  _____



Issue No: 1
Revision date: 16/11/01
Form: Form L1 Licence Application Landfills Final

## SECTION B – LOCATION OF PREMISES TO BE LICENCED

- Please attach map(s) showing the location of the premises in relation to the surrounding area and land uses.

- Please provide coordinates for the boundaries of the premises:

| | | | | |
|---|---|---|---|---|
| **Circle the Datum used** | GDA94 | WGS84 | AGD66 | Other: |
| **Circle the format of coordinates used** | Longitude/Latitude | | Eastings /Northings | |

| **Point number** | **Longitude (Degrees, Minutes & Seconds) or Easting** | **Latitude (Degrees, Minutes & Seconds) or Northing** |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| | | |
| | | |
| | | |

| | **Yes** | **No** |
|---|---|---|
| **Are you using a map to determine the location** | ☐ | ☐ |

(if yes answer a and b)

**a) please record the map name** _____

**b) map number**

- If available please provide the parcel of land identification eg Lot, Section or Portion Number and location code - Hundred of…):

- Please provide map(s) of the design and layout of the premises.

- If the landfill operation is to be conducted at more than one location, provide the information required for Section B for each premises.

- If there are any conditions or restriction placed on the usage of the land by either the owner or other authorities please provide details of these as an attachment.

## SECTION C – CONSENT OF OWNER/OCCUPIER

a) If the applicant does not own the site, provide details of the owner:

| | | | |
|---|---|---|---|
| Full name of land or premise owner | | | |
| **Street address** | Number | Name | |
| | Town/Suburb | State | Postcode |
| **Telephone Number** | B/Hours | A/Hours | |
| | Mobile | Fax | |

b) Provide evidence that you have the consent of the owner of the site to continue conduct of this activity.

## SECTION D – ACTIVITY AND WASTE EMISSION DETAILS

- Please specify the population that your facility services _____
- Please complete the following table:

| Tick | Category of waste | Brief description and sources (Only required for unshaded boxes) | Expected quantities per annum (tonne or $m^3$) |
|---|---|---|---|
| ☐ | Domestic | | |
| ☐ | Green Waste | | |
| ☐ | Non-hazardous-Commercial and Industrial | | |
| ☐ | Quarantine / Medical | | |
| ☐ | Hazardous-Commercial and Industrial | | |

| | | |
|---|---|---|
| **Do you burn waste?** | **Yes** ☐ | **No** ☐ |
| **If yes, how frequently?** | | |

| | |
|---|---|
| **How frequently do you cover wet waste (ie household rubbish, food scraps, sludges etc)?** | |

## SECTION E – ENVIRONMENTAL MANAGEMENT

Please attach any existing documentation such as:

- An Environmental Management Plan (EMP) or an equivalent document for your facility.
- If not included in the EMP, a description of how emergency situations will be dealt with (eg accidental chemical spillage or fire).

## SECTION F – DECLARATION

This declaration must be completed by the applicant or by a person(s) who is/are authorised to act for the applicant.

**I / we hereby declare that the information provided in this application and accompanying documents, is to the best of my/our knowledge, true and correct*.**

| | |
|---|---|
| Full Name<br>(BLOCK LETTERS) | |
| Signature | Date **/ /20** |
| Position of Signatory | |

Council Seal,
Public Authority Seal or
Council Seal (if used)

* Provision of false or misleading information, whether by reason of the inclusion or omission of any particular, may give rise to revocation or suspension of the licence.

**Indicate the number of additional pages attached to this application _____ pages**

**The fee for processing an application for a licence to operate a landfill is $300 per premises. Processing will not commence until the fee is received.**

Once completed and signed, send the form, the application fee (payable by cheque made out to the "Receiver Territory Monies") and appropriate attachments to:

**Environment Protection Agency**
**Department of Natural Resources, Environment and the Arts**
**PO Box 496**
**PALMERSTON NT 0831**

If your application is successful an annual fee may be payable on grant of the licence. You will be advised of the amount of annual fee payable – for general guidance see the "Guide to Licences and Approvals under the Waste Management and Pollution Control Act 1998".

**OFFICE USE ONLY**

| |
|---|
| **APPLICATION RECEIVED / /20** |
| **APPLICATION FEE RECEIVED / / 20 RECEIPT NO.** |
| **APPLICATION APPROVED / NOT APPROVED / /20** |
| **ANNUAL FEE RECEIVED / /20 RECEIPT NO.** |
| **LICENCE NUMBER** |

## APPENDIX 6 Guidelines for the preparation of an environmental management plan for a solid waste landfill facility

Waste management planning from site selection through to final rehabilitation will have long term economic and environmental benefits and will provide a sound basis for the effective ongoing management of facilities.

These guidelines identify issues to be addressed during the preparation of an Environmental Management Plan (EMP) and should generally follow the format provided.

The level of detail required for each landfill facility will vary, additional advice on preparation of an EMP can be obtained from the Waste Management Operation Branch of the Environment Protection Agency.

## SITE MANAGEMENT

1. **Water and leachate management**
   A description of the measures proposed for water management on the site and the prevention of off-site pollution by leachates.
   Information to include:
   - a surface water drainage plan giving the layout and design of all drains
   - a leachate management plan including drainage and earthworks for prevention, retention, collection and recycling of leachates
   - any proposed leachate monitoring program including the frequency and methodology of water sampling and the location of sampling points.

2. **Soil erosion control**
   A description of the measures proposed for the prevention of soil erosion on the site and the prevention of any off-site erosion by water and wind of areas disturbed by roads, drainage and other earthworks should be addressed.

3. **Fire protection**
   A description of the fire protection plan for the site including information on the
   - location, size and proposed management of fire breaks;
   - fire fighting plant and equipment to be stored at the site or available in the event of a fire; and
   - contingency plan for the management of accidental or illegal fires.

4. **Pest and Vector control**
   A description of measures proposed for the control of rodents, insects and other potential disease carriers or vectors.

5. **Litter Control**
   Details of the method proposed for control of litter on the site and on access roads and land adjacent to the site.

6. **Site Rehabilitation**
   The rehabilitation plan for the site should describe the methodology and sequence of rehabilitation and should address the following matters:
   - final site contour site drainage;
   - species of vegetation to be planted;
   - site security following closure; and
   - proposed future use (if known).

7. **Information**
   A description of the information plan for the facility including:
   - the nature and extent of information to be provided at the site including the location of all signs; and
   - any supporting community awareness programs.

8. **Plant and equipment**
   A description of the plant and equipment to be used during construction of earthworks and for regular operation of the landfill.

**WASTE MANAGEMENT**

1. **Description of landfill staging, method of filling and proposed management**
   This should include a description of the
   - design and dimensions of each landfill cell or trench
   - proposed plan for landfill operations including expected lifespan of each cell or trench and the sequence in which new cells or trenches are to be opened and worked
   - management of cells or trenches including the method to be used for waste burial, compaction, type of cover and frequency of cover
   - source and amount of soil cover to be stored on site
   - final capping and contour of landfill cells or trenches

   If burning has been chosen as an operational technique the following information should be provided:
   - how human health and safety and the environment will be protected during burning operations;
   - the frequency of burning;
   - measures to be taken to meet the requirements of the local fire authority;
   - steps to be taken to ensure refuse is all burnt or extinguished before personal conducting the burning leave the site; and
   - the training to be undertaken by staff conducting the burning operations.

2. **Provisions for recycling/ re-use**
   A description of the arrangements and facilities proposed for the separation of wastes for recycling and re-use at the site. This should include:
   - type of wastes to be recovered
   - location and description of recovery areas or containers
   - any on-site treatment processes involved including vegetation mulching
   - proposed promotion of recycling and re-use opportunities
   - proposed facilities for resale of goods if a scavenging contract is to be operative

3. **Description of wastes to be disposed on site**
   A description of the types of wastes that are to be accepted at the landfill and an estimate of the anticipated quantities of specific wastes to be managed each year.

4. **Prohibited wastes**
   A description of the types of wastes that will not be buried at the site and the proposed arrangements for the management of these wastes including
   - the public information to be provided regarding wastes not acceptable for burial at the site
   - location and design of facilities for secure storage of prohibited wastes which can be left at the site pending appropriate disposal
   - arrangements for the appropriate disposal of prohibited wastes.

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