

***Methodology for the Identification
of
Waste Disposal or Recovery Sites
in Ireland***

*Office of Environmental Enforcement,
EPA
March 2006*

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Methodology for the Identification of Waste Disposal or Recovery Sites in Ireland

1 INTRODUCTION

1.1 Purpose

The Agency developed this guidance following a request from the Minister for the Environment, Heritage and Local Government. It follows from the Ministerial Direction issued on the 3rd May 2005, which directed local authorities to comply with the requirements of Section 22 of the Waste Management Acts 1996 to 2003, in the current review of their Waste Management Plans. The Ministerial Direction in turn was part of the response by the Irish Government to the European Court of Justice ruling in case C-494/01 in order to demonstrate that the necessary measures are now being taken in Ireland, in terms of the structures, legislation and policy approach, to ensure a correct implementation of the provisions of the Council Directive 75/442/EEC of 15 July 1975 on waste as amended by Council Directive 91/156/EEC of 18 March 1991 and thereby fulfil the obligations under this Directive.

Specifically this guidance relates to the identification of sites at which ‘waste disposal or recovery activities have been carried on’. Further guidance, which will be in the form of a Code of Practice, will be published during the summer of 2006 by the Agency in relation to the carrying out of an environmental risk assessment at these sites.

It is likely that the application of this methodology will lead to the identification of a relatively large number of sites; however, the risk posed by many of these sites is likely to be low. This is particularly true for old municipal landfills, which have a limited potential to release pollutants and emissions to the environment. It is, however, necessary to identify these sites and then carry out a formal risk screening exercise to identify the level of risk posed by the sites.

It is anticipated that the number of sites that will have to undergo a comprehensive quantitative risk assessment will be small in comparison to the overall number of sites identified.

1.2 Scope

The European Court of Justice ruling in case C-494/01 noted that in Ireland the management of waste-related facilities by municipal authorities was not subject to a permit system until the 1996 Act and its implementing regulations were adopted. As regards waste managed by private operators, the court ruling noted that disposal has been subject to such a system since 1980, while waste recovery has been since 1998 and that all of this was contrary to the requirements of the 1977 Framework Waste Directive. The Court concluded that -

“Ireland had not yet met its obligation, by which it had been bound since 1977, to ensure that all municipal landfills hold the requisite permit. The failure to fulfil obligations, which is the result, all at once, of extremely belated transposition of

Article 9 of the Directive, of systematically refraining from requiring existing unauthorised activities to cease while the licensing procedure took place, and of a lack of appropriate measures for ensuring that facilities were promptly made subject to the domestic system finally set up, was as at that date both general and persistent in nature”.

Ireland is now dealing with this legacy by

1. Identifying all relevant sites which were not regulated since July 1977-the date for transposition of the Framework Waste Directive-these are primarily old municipal waste disposal sites but may also include unauthorised private sites which may come to attention and this methodology is intended to assist in that identification process
2. Undertaking risk assessments on all of these sites, and
3. Regulating these sites under Regulations being drafted by the Department of the Environment, Heritage and Local Government.

As to the identification process, the statutory basis for this already exists under section 22 (7)(h) of the Waste Management Act, which states that: -

“ a waste management plan shall.... include information on or otherwise have regard to
-the identification of sites at which waste disposal or recovery activities have been carried on,
-the assessment of any risk of environmental pollution arising as a result of such activities,
-measures proposed to be taken , or, where such an assessment has already been made, measures taken, in order to prevent or limit any such environmental pollution,
-the identification of necessary remedial measures in respect of such sites, and
-measures proposed to be taken or where measures have already been identified, measures taken to achieve such remediation, having regard to the cost-effectiveness of available remediation techniques.”

This provision requires the identification and assessment of all sites irrespective of their commencement date. While the main focus of this guidance and the Code of Practice will be on sites that require permitting under the Waste Framework Directive, older sites may also be identified by local authorities during the course of the exercise, which may represent a significant risk to human health or the environment and these also fall within the scope of section 22(7)(h) of the Waste Management Act. Such sites, where identified, should be included in the list of sites so that a proper evaluation of the risks posed by the sites can be conducted.

In addition, local authorities are required under Section 26(2) of the WMA to identify sites at which ‘waste disposal activities, being activities that to a significant extent involved hazardous waste, have been carried on’. This site identification exercise is also to be used to satisfy this requirement.

Waste Disposal and Recovery activities are those defined in the Third and Fourth Schedule of the Waste Management Acts, 1996 to 2003. Activities that should be considered during the identification phase have been divided into two distinct

categories, which reflect the likelihood of the site having been used for recovery/disposal of waste. This categorisation will allow sites

- **known** to have been used for waste disposal/recovery to be placed on a register and to be put through a risk screening process (guidance to be provided by EPA) in a timely manner, and
- **suspected** to have been used for waste disposal/recovery, to be investigated further, prior to being placed on the register where such use is confirmed through investigation.

Activities (considered appropriate for section 22 and 26)

Primary Activities (strong likelihood that waste disposal or recovery activities took place)

- Landfill
- Illegal waste disposal
- Land reclamation including infilling of wetlands
- Mining¹
- Sites used habitually for Fly Tipping
- Scrap yards or car dismantlers (Metal recycling/ELVs)
- Waste storage/transfer facilities
- Composting facilities
- Recycling facilities

Secondary Activities (possibility that waste disposal or recovery activities took place)

- Extraction industries including quarries surface impoundments including lagoons
- Tanneries (IPPC)
- Manufacturing- metals, glass, paper, textile, chemical, asbestos, pharmaceutical, etc. (IPPC)
- Solvent or organic substances recovery (IPPC or Waste licence)
- Sludge recovery or disposal
- Brownfield sites including gasworks (redevelopment areas)
- Railway lands (depots)
- Petrol Storage areas and Stations (age and scale)

¹ Consult with EPA and GSI for listing of mine sites within LA functional area

2 METHODOLOGY

2.1 Approach

The identification methodology is primarily based on a desk study of different information sources with verification comprising of both a desk study element and in some cases a site inspection/visit. A site inspection is required in cases where there is insufficient information is available from the desk study to complete the forms in Appendix A.

It is very important to reduce the level of uncertainty in the data as much as possible at the identification and verification stages so that only sites with a likelihood of having being used for waste disposal or recovery are considered for risk assessment. It is intended that the 'primary' activities would be considered first with a phased approach being used to allow for further examination of possible sites arising from 'secondary' activities. It is likely that a local authority will, through the knowledge of its own staff (particularly older or retired local authority engineers/overseers) and records, be in a position to identify candidate sites from 'primary' activities quickly. For instance, information on old municipal landfills will be readily available to local authorities and sites that can be readily identified should be catalogued first.

The 'secondary' activities include sites that, due to the activities that have taken place on site, may have had waste disposed of on-site or have become contaminated. These sites should be included on the possible sites list and further work should be undertaken on a phased based to confirm or rule out waste activities at the site and/or the presence of contamination. The type of contamination on sites as a result of the secondary activities should be noted and investigated to determine whether it was as a result of waste activities or by other means. While in some cases waste activities may not have taken place at a particular site, other activities may have led to a site becoming contaminated and it is important that this information be captured so that appropriate steps can be taken by the local authority to deal with any environmental or human health risks arising from the contamination.

This methodology sets out the information sources that are available as well as highlighting other tools, which may be useful in identifying unauthorised or old closed sites. While it is not meant to be prescriptive, a check-list is provided in Appendix A so that all actions taken are both systematic and documented and therefore local authorities can demonstrate their compliance with the guidance.

2.2 Desk Study Phase 1: IDENTIFICATION

Step 1: Identify all KNOWN Waste Disposal or Recovery Sites

A non-exhaustive list of sources of information is provided below. These sources should be used when identifying sites that have been used for the primary activities listed above. Each local authority should consult these sources and document any findings or otherwise in the Check Lists in Appendix A. These sites should then form the basis of a Section 22 register. Local authorities should commence Step 1 immediately.

- Local Authority records and knowledge (including questionnaire to staff and retired staff)
- Waste Plans

- Special Waste Plans
- Section 22 registers (existing)
- Section 55 notices
- Section 18 notices
- Complaints databases
- LA Permit register
- An Foras Forbatha Reports²
- EPA Waste Reports (including the National Waste Database report)
- EPA IPPC licensed facilities (includes on-site landfills)
- EPA licensed waste disposal and recovery sites
- Environmental Protection Agency/Department of Communications, Marine and Natural Resource (Geological Survey of Ireland and Exploration and Mining Division)³
- EPA Small Scale Study EPA register of former mine sites (1996)

Step 2: Identify POSSIBLE Waste Disposal or Recovery Sites

The list of 'secondary activities' mentioned above is the starting point for the development of a list of further 'possible' sites. The identification of the past uses of a site and the collection of information is normally the first stage of the process of establishing whether or not waste has been disposed of on-site or if the site is contaminated. Information required relates to the processes used, raw materials, wastes residues and methods of disposal. Indications that waste has been disposed of or recovered on-site may be gathered from the sources below but additional information may need to be obtained to verify that this was the case. This verification may be in the form of interviews with companies, site inspections or other methods. Sites that are subject to IPPC licensing can be excluded from this further investigation by local authorities, as the enforcement of licence conditions by the EPA should control/remediate any possible contamination. However, the sites that are known by the Agency to be contaminated should be included on the section 22 (or 26) registers.

Work in this area will be an ongoing process and may take a number of years. As sites are confirmed as locations where waste disposal or recovery has taken place, they will then be placed or added on to the section 22 (or 26) register.

A list of data sources is provided below and any information obtained should be included in the check-list in Appendix A.

The list also includes suggested methods that may be used to assist in the identification of unknown unauthorised disposal sites. These methods include comparison of aerial photographs from the 1970's, 1995 and 2000 (more recent photos in some areas), which provides a good method of identifying changes in land use and use of sand and gravel pits etc., satellite imagery and aerial surveys where the use of a light aircraft may be an effective tool.

Different methods will be appropriate depending on the circumstances of each local authority area.

² Addendum on Tipsite Statistics to National Database on Waste, An Foras Forbatha, 1986

³ Characterisation of Historic Mine Sites in Ireland and their environmental risks (Environmental Protection Agency/Department of Communications, Marine and Natural Resource (GSI and EMD) 2005

- Permit register
- Toxic and Dangerous Waste Register
- Waste Oils Register
- Derelict Buildings
- Dangerous Buildings
- Planning files (re-development)
- LA complaints database
- EPA complaints database
- EPA possible applicant files
- GSI quarries directory/ LA quarry registers
- National Roads Authority investigations
- Ordnance Survey maps (1:10,560)
- Aerial Photography
- Satellite Imagery (e.g. Quickbird)
- Thermal Imagery
- Remote Sensing
- Aerial Survey (e.g. light aircraft)
- Google Earth
- Placing of Newspaper advertisements

Other supplementary sources may also yield further important information on individual sites e.g. Coillte, Health Boards, Fire Service, Insurance Companies.

The sites identified from these data sources and other methods should be included on a list of possible sites with the same information documented as for sites that are placed directly onto the register. However, additional work, which may be in the form of a site inspection or obtaining information from a land owner, may be required to demonstrate that certain sites were used for waste disposal/recovery and hence these sites should not be placed on the register until such confirmation is obtained. The compilation of a register is an iterative process.

Step 3: Identify Possible Hazardous Waste Producers/Users in functional area

As mentioned already there is a requirement under section 26 (2) of the WMA to identify sites at which '*waste disposal activities, being activities that to a significant extent involved hazardous waste, have been carried on*' therefore it is beneficial for local authorities to gather information at this stage on industries and or sites where hazardous material was used. Additional information should then be obtained to determine whether or not hazardous waste was disposed of on-site or at off-site local landfills in the proximity of the industries concerned. Further guidance is provided in the National Hazardous Waste Plan and in the ERTDI Report Series No.16⁴.

The following information sources should be examined and any information gathered should be documented in the check-list in Appendix A.

- IPPC Annual Environmental Reports (AERs)
- Toxic and Dangerous Waste Register
- Waste Oils Register
- Solvent Users Directory (EPA project)
- Trade Directories (e.g. Kompass, Golden Pages)
- Geodirectories
- Oil companies
- Sheep dipping baths

Prior to any site being placed on a Section 26 'register' it should be verified that the waste disposal activities involved to a significant extent hazardous waste. In many

⁴ Methodology for Assessment of Hazardous Waste Disposal Sites (EPA, 2003)

cases this will only be known following a site investigation. It is therefore suggested that sites, where waste disposal is known to have occurred and where there is some suspicion that hazardous waste was deposited, should be first placed on a Section 22 register and put through the risk screening process and subsequent site investigations prior to being placed on a section 26 register. However, any suspicion regarding the presence of hazardous waste should be well documented in the check-list and supporting evidence provided in the comments section.

Step 4: Identify Possible Impacts

During the collation of the above information any impact data should be documented on the check-list. Additional sources of information, which can serve to identify impacts from candidate sites, are outlined below:

- Water Pollution notices
- Walk over survey
- EPA and Local Authority Monitoring reports/results
- River Basin District Impact reports
- Catchment Monitoring Projects
- Landfill monitoring results
- Planning files
- Section 4 register
- Section 16 register
- Residual visual impact on landscape

This information will assist in the risk screening process and in the prioritisation of sites. Any site that has an impact associated with it shall be placed on the section 22 register for further investigation and risk assessment.

2.3 Desk Study Phase 2: DATA COLLECTION AND VERIFICATION

The data that is required to be obtained for all sites on the Section 22 register is outlined in Appendix A. This information will then be used in the risk assessment process. It is essential that there is a high level of confidence in this data and therefore the verification step is necessary both in terms of the site having been used for waste disposal/recovery and also the information on the extent and type of waste that has been disposed/recovered.

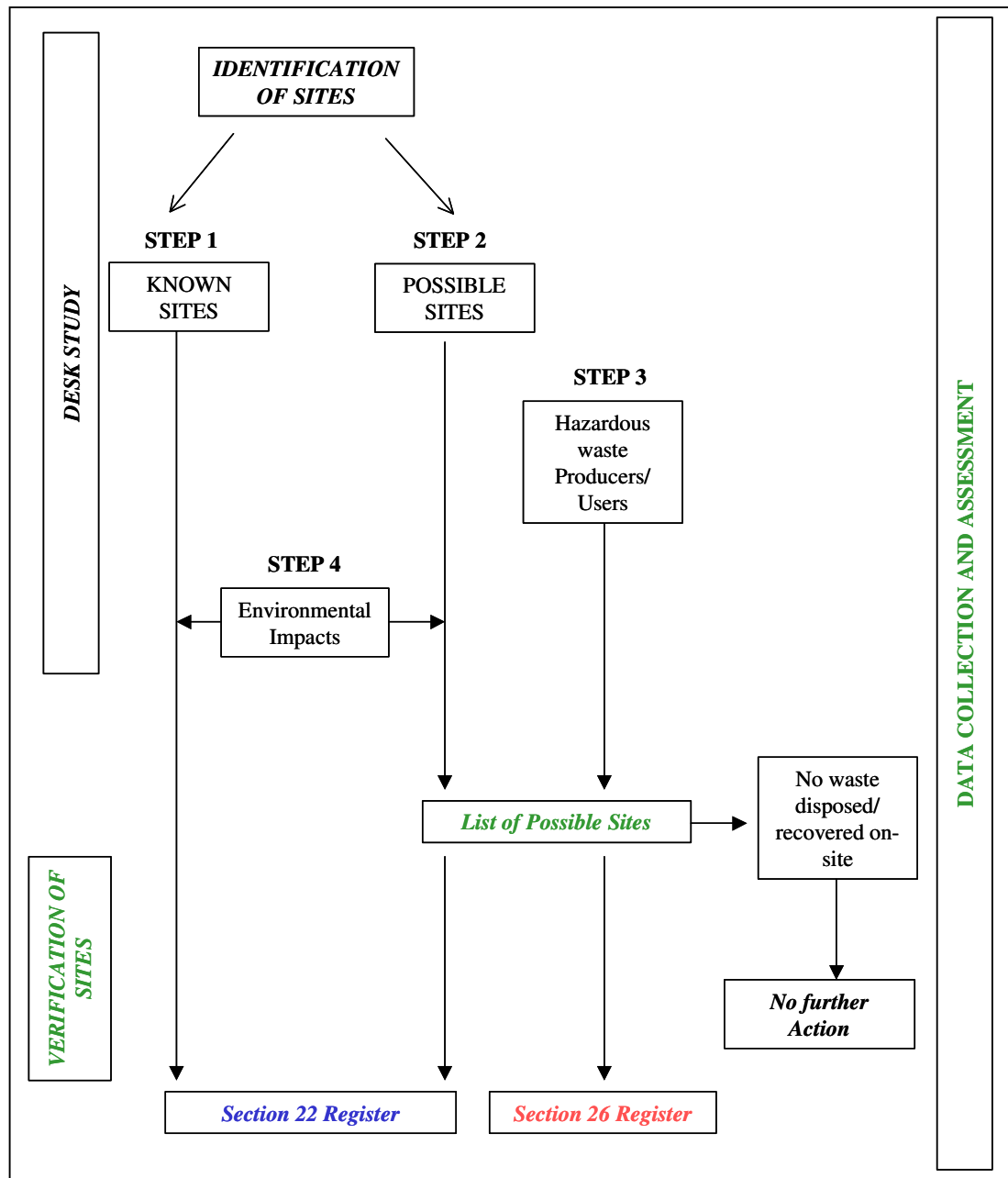
Step 1 Determine the likelihood that site was used for waste disposal or recovery and also obtain information on the types of wastes involved. This information can be obtained using the following methods;

- Interviews
- Walk over survey
- Records (LA)
- Existing site investigation reports
- Local knowledge

Step 2 Determine extent and type of waste from

- Records (LA)
- Existing site investigation reports
- Aerial Photographs
- Field Mapping
- Satellite Imagery
- Ordnance Survey mapping (1:10,560 - 1:50,000)
- Geophysics
- Site investigations (existing)

Figure 1: Stages in the development of a Section 22 and 26 register



Some of the detailed Step 2 verification procedures outlined above may need to be carried out during the site investigations aspect of the associated risk assessment process. An example is where the waste type is thought to be non-hazardous but there are no records to demonstrate this. Some assumptions have to be made to proceed to the risk screening process but these should be documented in the comment section of Table 2 in Appendix A.

Step 3 Data collection

Data collection is a continual process that starts at Phase 1 and continues throughout the process. As a result of the data collection procedures applied in Step 1 and Step 2, a minimum amount of information should have been assembled on the all sites investigated (Table 2). There should be a high level of confidence that the site has

been used for waste disposal or recovery at some time in the past (or present). The information required to complete Table 2 (a separate table is required for each site) is as follows;

- Delineate area on map (1:50,000) (GIS shape file)
- GPS or grid co-ordinates of centre point and boundary
- Period of operation
- Authorisation (if any)
- Type of Waste Activity (Disposal or Recovery)
- Waste Type
 - o Include a note if hazardous waste producer/users in catchment area or if evidence (or suspicion) of hazardous waste disposed at the site.
 - o Type of contamination (if present)
- Height or thickness of landfilled area
- Approximate tonnage of waste present
- Lined/unlined
- Comment on known impacts
- Assumptions made

The Waste Type shall be described in accordance with the waste streams as outlined below

- Construction and Demolition Waste
- Manufacturing Waste
- Mining and Quarrying Waste
- Municipal Waste
- End of Life Vehicle and Scrap Metal
- Hazardous Waste
- Contaminated Soil
- Energy, Gas and Water Supply Waste
- Dredge Spoils
- Drinking Water Sludges
- Urban Wastewater Sludges
- Agricultural Waste

In order to facilitate transfer of data into the Risk Assessment Code of Practice a GIS shape file should be generated which delineates the aerial extent of the landfill and has associated data fields attached. The associated data shall include as a minimum: the type and thickness of waste or contaminant present; the period of operation of the site and the assumptions made. This layer will then form the starting point for the associated environmental risk assessment screening process.

2.4 Desk Study Phase 3: ASSESSMENT OF DATA

At the end of Phase 2 each local authority should have a complete listing of waste disposal and/or recovery sites within their functional area. The list and register of sites should be sub divided into sites used for disposal of waste and sites used for recovery of waste, as the risk assessment methodology used may be slightly different

The list of sites should be divided into known sites that are to be placed on the section 22 register and sites that may require additional information to be gathered on them prior to being placed on a register. This will allow the local authority to proceed with the risk screening of those sites **known** to have been used for waste disposal/recovery while at the same time gathering additional information of the list of possible sites. After the risk screening, the risk status of each site shall be known and should be catalogued on the register. Sites cannot be removed from the Section 22 or 26 register if waste was disposed of or recovered on site.

If sites were known to have to a significant extent been involved in hazardous waste disposal then they should be placed also on a section 26 register. If there is insufficient evidence that significant amounts of hazardous waste was deposited in the site then this should be noted and the site undergo further investigation following the risk screening to confirm or rule out the presence of hazardous waste prior to deciding whether or not to list the site on the section 26 register.

APPENDIX A

DATA CHECK LISTS

TABLE 1: Sources of information CHECK LIST

Source of Information	Reviewed Y/N	Comment
Local Authority Sources		
Local Authority records and knowledge (including questionnaire to staff)		
Section 22 registers (existing)		
Waste Plans		
Special Waste Plans		
Section 55 notices		
Section 18 notices		
Complaints databases (LA and EPA)		
LA Permit registers		
Toxic and Dangerous Waste Register		
Waste Oils Register		
Derelict Buildings Register		
Dangerous Buildings Register		
Planning files (re-development)		
LA quarry registers		
EPA Sources		
EPA Waste Reports (including the National Waste Database report)		
EPA IPPC licensed facilities		
EPA licensed waste disposal and recovery sites		
IPPC reports (on-site landfills)		
IPPC AERs		
EPA possible applicant files		
Other Sources		
An Foras Forbatha Reports		
Trade Directories (COMPASS etc)		
GSI quarries directory		
Aerial Photography		
Remote Sensing		
Aerial Survey (e.g. light aircraft)		
Newspaper advertisements		

Signed: _____

Date:

TABLE 2: Site Information CHECK-LIST

ID number	
Site Name	
Location (attach 6" map)	
County Council	
Easting (6 digits)	
Northing (6 digits)	
Source of information	
Owner/Occupier	
Waste Activity	
Period of Operation	
Authorisation	
Waste Type	
Estimated tonnage of waste	
Hazardous waste present or unknown	
Verification method	
Known Impacts	
Risk Score	
Comments	

Signed

Date

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